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The Graduate School

For Men and Women

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Scranton, Pennsylvania

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UNIVERSITY OF SCRANTON
GRADUATE SCHOOL

CALENDAR FOR FALL - 1973

September 4, 5	Registration
September 5	Classes Begin
September 12	Final day for change of course and late registration
October 13	Comprehensive Examinations
October 20	Last day for submission of Graduate Thesis and Scholarly Paper (Final Draft)
November 1	Holy Day - Classes Scheduled
November 21, 22, 23, 24	Thanksgiving Holidays
December 8	Holy Day* - Classes Scheduled
December 17 - 22	Semester Examinations
December 22	Semester Ends

*Also Dean's Birthday

CALENDAR FOR INTERSESSION - 1974

January 3	Registration
January 3	Classes Begin
January 31	Semester Examinations

CALENDAR FOR SPRING - 1974

February 4	Registration
February 4	Classes Begin
February 11	Final Day for late registration and change of course.
February 18	Washington's Birthday - Classes Scheduled
March 9	Comprehensive Examinations
March 18	Last day for submission of Graduate Thesis and Scholarly Paper (Final Draft)
April 10 - 16	Easter Holidays
May 14 - 20	Semester Examinations
May 20	Semester Ends
May 25	Baccalaureate Mass
May 26	Commencement

CALENDAR FOR SUMMER - 1974

June 24	Registration
June 24	Classes Begin
June 26	Final day for late registration and change of course.
July 4	Independence Day - No Classes
August 2, 3	Semester Examinations
August 3	Semester Ends

TENTATIVE CALENDAR FOR FALL - 1974

September 3, 4	Registration
September 4	Semester Begins

CALENDAR FOR

COLLEGE MISERICORDIA

AND

MARYWOOD COLLEGE

Please consult Graduate School Office of the respective college.

GENERAL INFORMATION

The University of Scranton, the oldest Catholic institution of higher education in Northeastern Pennsylvania, was founded in 1888 as Saint Thomas College. It is chartered under the laws of the Commonwealth of Pennsylvania and empowered to confer Bachelor's and Master's degrees in the Arts, Sciences, Business Administration and Education. In 1938 Saint Thomas College became the University of Scranton, while four years later the Society of Jesus acquired title from the Catholic Diocese of Scranton and administrative control from the Brothers of the Christian Schools. Thus Scranton became the twenty-fourth of the twenty-eight Jesuit colleges and universities in the United States.

In 1950 graduate study in Education was initiated, the first Master's degree being awarded in June, 1952. Since that time more extensive programs were developed in Elementary Education, Psychology and Guidance, Educational Administration. Through courses at the University's Graduate School several State Certificates may be obtained. A graduate History program was first offered in 1955, while graduate curricula in English and in Business Administration are of 1960 origin. Graduate programs in Chemistry and Physics began in the Fall of 1967.

The University of Scranton Graduate School offers programs of study leading to the following degrees: Master of Business Administration; Master of Arts or Master of Science degree in English, American History and Politics, Chemistry and Physics. In addition a Master of Arts or a Master of Science degree program may be selected in any of the following areas: Art Education, Elementary and Secondary Education, Elementary and Secondary School Administration, Counselor Education, General Science, Reading, Rehabilitation Counseling and Vocational Adjustment. A program of study can be developed by the student correlating a M.S. program in Secondary Education with Business, English, History. Mathematics, Reading, General Science, Chemistry or Physics.

Students in the M.A. program in History and English have the option of a thesis or non-thesis program; those in the M.A. program in Education, Chemistry and Physics are required to complete a thesis.

OBJECTIVES

As one of the family of world wide Jesuit Colleges and Universities, the University of Scranton shares with them a common educational heritage and tradition. Its principal objective, therefore, is: to lead the student to understand and to inspire him to fulfill that complex of dignities and responsibilities which Man is, as a person

and as a member of human society, under God.

Specifically, as the university in this community, the University of Scranton labors to prepare its students to be thoughtful, active, effective citizens with a developed sense of leadership and a dedicated spirit of community service in the arts and professions.

More particularly, the Graduate School of this University aims 1) to communicate, interpret, intensify and integrate academic knowledge and relationships; 2) to develop professional attitudes, skills and competence in the student's chosen area of concentration; 3) to foster those value judgments so basic to human life and education—values which flow not only from a given discipline but also from Christian revelation and the Judaeo-Graeco-Roman, Western moral and intellectual tradition; 4) to promote research.

ORGANIZATION AND LOCATION

The administration and supervision of the Graduate School is the responsibility of the Dean of the Graduate School. He is assisted by a Graduate Advisory Committee, of which he is chairman. All questions concerning admission, candidacy and comprehensive examinations or modifications of course programs, must be submitted in writing to the Dean of the Graduate School. Decisions of the Dean of the Graduate School and his Advisory Committee are final.

Requests for admission, transcript, letters to draft boards and data concerning academic records should be made to the Graduate Office, University of Scranton.

The office of the Dean of the Graduate School is Room 310, St. Thomas Hall, Monroe & Linden Street. The office is open daily from 8:30 a.m. to 4:30 p.m. Monday through Friday. When classes are in session it is also open in the evenings and on Saturday mornings. FOR STUDENTS WHO WISH TO CONSULT THE DEAN THE COURTESY OF CALLING FOR AN APPOINTMENT IS RECOMMENDED.

There are three regular semesters of graduate courses: Fall, Spring and Summer. Fall and Spring graduate courses are taught each evening, except Friday, at Monroe & Linden Street from 7:00 to 9:00 P.M. and on Saturdays from 9:00 A.M. to 1:00 P.M. During the Summer term, graduate classes are scheduled Monday through Thursday for six weeks.

An Intersession Program is held between the Fall and Spring Semesters. Please consult the special bulletin issued in December regarding the details of this session.

Graduate courses in the M.B.A. program are taught at O'Hara Hall, Linden St. and Jefferson Avenue.

Time schedules for each course appear in the special bulletins

published four times each year for Fall, Intersession, Spring and Summer programs, and can be obtained at the Graduate School Office.

COLLEGE MISERICORDIA

According to a cooperative agreement for graduate programs, the University of Scranton Graduate School and College Misericordia, Dallas, Pa., will offer several courses during the Summer, Fall and Spring Semesters on the campus of College Misericordia. During the summer sessions, classes will be conducted on the same time schedule as the U. of S.. During the Fall semester and the Spring term the classes will be scheduled on Saturdays from 9 A.M. to 1 P.M.

Application for admission to graduate study must be made to the University of Scranton. The faculty will be members of the cooperating schools. Credits are granted by the University of Scranton. Up to fifteen credits toward the M.A. or M.S. degrees may be acquired at College Misericordia while the remaining credits must be obtained at the University of Scranton. Charges at the cooperating schools are identical. So also are the candidacy and comprehensive examinations, course numbering, content and credits, curriculum and departmental requirements. Courses at both Scranton and Dallas are open to men and women.

MARYWOOD COLLEGE

Through a cooperative arrangement with Marywood College, graduate students at the University of Scranton who wish may enroll in graduate courses offered at Marywood College. Students should consult with their mentors regarding details and to secure their written permission before registering for such courses. Registration for said courses will be handled by the staff of Marywood College.

APPLICATIONS

All planning to enter the Graduate School should contact the Graduate Office for an application form. Completed applications, together with transcripts of undergraduate and graduate work taken elsewhere, should be in the Graduate Office two months before the applicant begins graduate study. FOREIGN STUDENTS SHOULD ALLOW AT LEAST THREE MONTHS.

Admissions standards and policy of the University are free of discrimination on grounds of race, color and national origin. The University recognizes both its legal and moral obligations to fulfill the regulations of Title VI of the Civil Rights Act of 1964 and to conform to all applicable laws and regulations.

ADMISSION STATUS

1. *Regular Admission.* Students admitted to graduate study after meeting the general requirements of the Graduate School and those

of the Department in which they are to enroll. CLASSIFICATION: DEGREE STUDENT.

2. *Provisional Admission.* Students admitted to graduate study under this category must, in addition to meeting the regular requirements, satisfactorily complete additional conditions before they can be raised to Candidacy status. CLASSIFICATION: DEGREE STUDENT—PROVISIONAL.

3. *Probational Admission.* A student may be admitted on a probational basis under certain circumstances. If admitted, this means that upon completion of nine graduate credit hours, the credentials and the current work of the student are reviewed. At this point it is then determined whether or not the student will be allowed to continue as a degree student. CLASSIFICATION: DEGREE STUDENT—PROBATIONAL.

4. *Special Student.* Students in this category are restricted to graduate study for the following purposes: certification only, transfer of credit, or self-improvement. Students so classified are not considered degree candidates unless the student presents his request to become a degree candidate in writing to the Graduate School and receives subsequently the approval of the Admissions Committee. CLASSIFICATION: SPECIAL STUDENT.

Admission to graduate study, under any cirmumstances, does not imply admission to candidacy for an advanced degree.

ENGLISH LANGUAGE REQUIREMENT—FOREIGN STUDENTS

Students who are citizens of non-English-speaking countries will be required to complete a review course in English. This course is specifically designed for international students who already possess a working knowledge of the English language. It is not designed for the student who has not had any previous training in the English language.

In addition to a basic English review, the course will familiarize the international student with the technical language necessary for the advanced program in which he has enrolled.

International students who present a TOEFL (Test of English as a Foreign Language) score will be considered for waiver of the English course requirement. However, this waiver is based on individual interpretation of the TOEFL score, and not on a minimum achieved score.

REGISTRATION FOR COURSES

Registration for each semester will take place according to the schedules listed in the special bulletins which are issued prior to each semester. Mail registration is permitted after the initial acceptance and registration. Registration will be with the approval of a student's mentor or chairman of the department. A student may not drop or transfer

from a course in which he is registered without the approval of his mentor and the Dean.

In order to facilitate registration for old and new students a period of pre-registration is held each semester. This will extend over a period of about 10 days and all graduate students taking courses during the current semester must register between the announced dates. Those who do not register and have an insufficient excuse will be charged a late registration fee of $15.

The University reserves the right to withdraw a course from its schedule in which less than ten students have been registered.

Undergraduate students may register for certain graduate courses. However, it is required that they have approval of the appropriate Department Chairman and the permission of the Dean.

CANDIDACY

The student is not considered a candidate for a degree until he fulfills the following requirements:

1. Completes successfully at least nine semester hours of course credit at the University of Scranton.
2. Files a formal application for degree candidacy with the Dean.
3. Is approved by the department in the field of his major concentration according to departmental norms.

MENTORS

From the inception of graduate study, students will be assigned a mentor to help them formulate a program of studies and supervise their work. It is suggested that students work closely with their mentors and that the courtesy of arranging appointments in advance with faculty members so designated be observed by all students.

GRADES

Achievement of Graduate Students is recorded as *A—excellent; B+—superior; B—good; C—fair but passing; F—failure.* To insure qualitative standards a student incurring 4 "C"s or 3 "C"s and an "F" ceases to be a candidate for a degree but may continue to take courses for information, self-improvement or credit. A student who fails any two courses will be automatically dismissed and so notified by mail.

Papers, reports and assignments should be rendered promptly, and permission of the professor is required for deferral of such work. Given an extension, the student should submit all required work no later than one month after the end of the semester. Failure to complete the work within the stipulated time results in automatic conversion of the "Incomplete" to failure (F).

Regular attendance at class is considered a requisite for successful completion of a course.

TIME LIMIT

All graduate work including the thesis must be completed within six consecutive years. Time spent in the armed forces is not included in the six year period. Extension of this time restriction may be granted for valid reasons at the discretion of the Dean.

INSTITUTES

From time to time the University conducts special programs for teachers-in-service. Graduate or undergraduate credit may be gained by successful work in the programs, but in the case of the graduate student, no more than twelve credits of the advanced degree work may be earned in the institutes.

TRANSFER OF CREDITS

After a student has acquired candidacy status he may request that approved graduate work previously completed at other institutions be accepted as partial fulfillment of graduate course requirements here. This will be granted only under the following conditions:

1. That such credits were acquired in residence at the other institution. Extension credits are not acceptable.
2. That only six (6) credits maximum be transferred.
3. That courses to be transferred parallel courses here and mesh with the student's program at the University of Scranton.
4. That these credits were taken within six (6) years of the student's admission.
5. That a grade of B or better was acquired in these courses and that an official transcript is submitted for work at other institutions, including the course description of the credits in question.

Students matriculated at the University of Scranton may follow courses at other approved graduate schools, and transfer credits only with the previous permission of their mentor and the Dean of the Graduate School.

COMPREHENSIVE EXAMINATIONS

Before a Master of Arts or Master of Science degree is awarded, the candidate must pass a comprehensive examination in his graduate course work. This examination may be either oral, written or both. Eligibility for admission to the examination is determined by the student's mentor with the approval of the Department Committee. This examination will be given only on the dates published in the graduate catalogue. Application forms are obtainable at the Graduate School Office.

Several weeks before the examination date, the candidate should consult his mentor for a general explanation of the topics to be covered in the examination and file an application for the examination.

Candidates failing the comprehensive examination for the second time will not be considered for the advanced degree.

The results of the comprehensive examination will be forwarded to the candidate by mail.

THESIS

Candidates for the Master of Arts degree in Education, English, History, Physics or Chemistry must present a thesis, completed under the active supervision of the candidate's mentor and approved by one additional reader. In case of doubt, a third reader may be required. In the preparation of the thesis, style regulations prescribed by the Graduate School will be observed. Two copies of the accepted thesis must be submitted to the Graduate School Office on or before the date indicated in the university calendar.

SUMMARY

The following procedures are to be followed by students working for the advanced degree:

1) File an application for admission to graduate study, official transcripts of undergraduate preparation and of graduate credits taken elsewhere, and supporting recommendations.

2) Meet with their mentor to organize a program of studies in the major course concentration selected and confirm the program at each registration period.

3) Apply for candidacy for the degree by fulfilling requirements.

4) Complete core, specific major and elective courses.

5) Complete the required thesis if applicable.

6) Successfully pass the required comprehensive examination.

7) Make formal application to the Graduate office for the degree.

ALUMNI MEMORIAL LIBRARY

The library is located on the Scranton Estate. It contains more than 145,000 bound volumes, with over 850 literary, scientific and professional periodicals currently received. Microfilm, micro fische, and micro card reading equipment is available, as well as, inter-library loan.

The library is open daily during the Fall and Spring Semesters from 8:30 A.M. to 11:00 P.M., Monday to Thursday; 8:30 A.M. to 5.00 P.M. on Friday; 9:00 A.M. to 5:00 P.M. on Saturday. During the Summer Semester the hours are the same with the exception of a 9:00 A.M. opening hour each day. The library is open on Sundays from 3:00 to 9:00 P.M. These hours are subject to change.

COUNSELING AND PLACEMENT

The University's counseling and placement services are available to graduate students. The Counseling Center is located in St. Thomas Hall, Room 401 and the Placement Office in Room 402. All offices are open on weekdays from 8:30 A.M. to 4:30 P.M. and at other times only by appointment.

In addition, there is an Advanced Study Office to serve students anticipating further graduate work, and for foreign students an Inter-National Student Advisor is available.

FINANCIAL AID

Graduate teaching assistantships are available in each department offering graduate programs. Departments also award fellowships and assistantships to graduate students who aid in a variety of departmental duties, including assisting in faculty research. Traineeships are available for those students in the Rehabilitation Counseling program; aid is also provided for those enrolled in the Vocational Adjustment program through the Professional Education Program of the State of Pennsylvania. Information and application forms for the assistantships, fellowships, and traineeships may be obtained from the Dean of the Graduate School.

Resident assistantships are offered to single male graduate students, providing room and board in the university's dormitories. Applications may be secured from the Student Personnel Office.

In addition, loan programs for graduate students, including the National Graduate and Professional School Financial Aid Service, and a number of campus jobs through the Work-Study program are offered. Inquiries regarding loan and Work-Study programs should be directed to the Financial Aid Office.

CAMPUS HOUSING

Limited housing is offered for single male graduate students in the ten modern university dormitories. Room and board for one semester on a three-meal plan is $565.00. Assistance is provided in locating suitable housing for men and women who prefer to reside off-campus.

PHYSICAL EDUCATION CENTER

The use of the John J. Long Center is provided for graduate students at a cost of $7.00 per semester. Facilities are provided in the physical education building, for all indoor sports such as basketball, handball, weight lifting. A physical therapy room and sauna bath are also housed in the structure.

COMPUTING CENTER

The Sigma 5 Xerox Data System, located in the Computing Center, is available for use by graduate students conducting research and programming functions in this area.

HONOR SOCIETIES

Chapter organizations of several national honor societies are maintained at the University of Scranton campus. Graduate students can be selected for membership in the following: Alpha Sigma Nu, international Jesuit honor society; Phi Delta Kappa, education; Phi Alpha Theta, national honor society in history; Delta Mu Delta, business administration honor society; Sigma Pi Sigma, physics honor society and Omicron Delta Epsilon, national honor society in economics. Contact the chapter officers for further information regarding membership.

RESERVE OFFICERS' TRAINING CORPS PROGRAM (ROTC)

University of Scranton graduate school students are encouraged to consider enrolling in the ROTC program. Students who successfully completed the ROTC Basic Course as undergraduates would participate in the Advanced Course to include a six-week summer camp at the end of their first year of graduate school. Students who did not enroll in or complete the Basic Course as undergraduates would be required to attend a six-week basic summer camp prior to being accepted in the Advanced Course.

Upon completion of graduate school, students would be commissioned as Second Lieutenants in the United States Army and would have an active duty obligation of two years. Graduate school students are deferred from the draft while enrolled in the ROTC program.

Interested students should contact the Professor of Military Science in Room 104, Saint Thomas Hall.

EXPENSES

GRADUATE SCHOOL

Tuition (per semester hour of credit)	$56.00
Fees —	
Admission Fee	10.00
Library Fee (per semester)	5.00
Science Lab Fee	30.00
Late Registration	15.00
Prerequisite Challenge Examination Fee	30.00
Audio-Visual Aids Fee	5.00
Binding of Thesis	20.00
Graduation Fee	30.00

Unless explicitly stated otherwise, tuition and fees are for one semester and are payable at registration.

Students will not be permitted to receive any degree, certificate, or transcript of record until their financial accounts with the University have been satisfactorily settled.

REFUNDS

No refunds may be demanded as a matter of right when a student leaves the University without completing the semester in which he was engaged. If, however, his withdrawal is authorized by the Dean for a good cause and if he is entitled to an honorable dismissal, he may request in writing a refund of tuition. Fees are not refundable.

The following refund scheduled will be applied to approved cases:

Date of Notification of Dean	*Refund*
Fall Semester, 1973	
To September 12	80%
To September 19	60%
To September 26	40%
To October 3	20%
Beyond October 3	No refund
Intersession, 1974	
End of First Week	80%
End of Second Week	40%
Beyond Second Week	No refund
Spring Semester, 1974	
To February 11	80%
To February 18	60%
To February 25	40%
To March 4	20%
Beyond March 4	No refund
Summer Semester, 1974	
End of First Week	80%
End of Second Week	40%
Beyond Second Week	No refund

Cooperative Programs

The University of Scranton is currently negotiating arrangements to join with six area colleges in the Lehigh Regional Consortium. Details regarding this matter will be announced later, when and if, arrangements are finalized.

DEPARTMENT OF EDUCATION

Dr. Lawrence J. Lennon, Chairman

DEPARTMENTAL REQUIREMENTS

The applicant for admission must possess the baccalaureate degree from an accredited college or university and provide the Departmental Committee on Admissions with evidence of satisfactory undergraduate preparation to achieve graduate work of good quality. The Departmental Admissions Committee will consider each application toward this end.

The Admission Committee will also consider the academic and personal traits of each applicant in relation to his potential for satisfactory achievement in graduate study.

With the exception of rehabilitation counseling and counselor-education majors, the applicant will have completed the ordinary state requirements for professional certification; of those seeking a masters' degree, a B average in undergraduate Education courses is expected. If undergraduate course preparation in Education or the general or liberal studies is deficient as determined by the Admissions Committee, the student will correct the deficiency before he applies for candidacy for the advanced degree.

Specific requirements for entrance into certain major concentrations are in addition to the admissions requirements to graduate study in Education at the University. These are described in the sections on Course Concentrations.

CANDIDACY

It is the responsibility of the student to fulfill all candidacy requirements. His acceptance as a graduate student in a given major requires that he fulfill the following requirements:

1. File a formal application for candidacy with the Dean of the the Graduate School.
2. Pass all courses required for candidacy with a mark of B in each course. He will only be allowed to repeat any course once. (See requirements of each major).
3. Is approved by the Department in the field of his major concentration according to Departmental norms.

THE MASTER OF ARTS DEGREE

Thirty semester hours credit are needed for the M.A. degree. Nine of these will be in Education 202, 205, 206 or 207. Of the remaining twenty-one, three credits are allowed for the successful completion of a thesis, a requirement of the Master of Arts degree.

At the time of candidacy for the degree, the candidate's mentor, in co-operation with the student will plan a program of studies which together with the thesis, will provide a sound treatment of some area of interest. As a result of intensive work in this area, his study should be marked by sound mastery and technical accuracy. The M.A. program may entail requirements prescribed by the mentor, including those essential courses consistent with sound scholarship. The mentor's judgment in this matter is final.

The thesis required for the M.A. degree may be a research paper of suitable dimensions, a critical report of certain procedures or sectors of knowledge, or a scholarly biographical work on the Master's level.

The student with the permission of the mentor will register for a seminar while working on his thesis.

THE MASTER OF SCIENCE DEGREE

Thirty semester hours or more of course credit are usually required for the M.S. degree. In the Rehabilitation Program, however, 57 graduate credits may be required depending on the applicant's undergraduate major and appropriate employment experience, as determined by Departmental norms. For the M.S. there is no thesis requirement, but a scholarly paper must be presented to the mentor 60 days before graduation. The student may seek the Master of Science degree in any one of the concentrations indicated hereafter.

Before registration the graduate student will meet with his advisor for the selection of a concentration of courses, and the approval of his program of studies. About one half of the course requirements for the Secondary Education program will be in a subject-matter field.

While the candidate's courses within a concentration should possess flexibility, certain essential courses are required. The advisor may make substitutions in order to round out a sound program of courses, and in this matter his judgment is final.

THE COMPREHENSIVE EXAMINATION

A comprehensive examination as prescribed by the student's mentor is required of all candidates for a degree in education. This examination may be written, oral or both.

MAJOR COURSE CONCENTRATIONS

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SECONDARY EDUCATION

Dr. Matthew C. Farrell, Director of Graduate Program

Objective: To prepare the secondary school teacher in-service for more effective instruction of students.

Core Courses:		*Semester Hours*
Education 202	Educational Research and Literature	3
Education 205	Historical and Philosophical Bases of Education I	3
Education 206	Historical and Philosophical Bases of Education II	3
	or	
Education 207	Sociology of Education	3

Required Courses:

Education 233	Curriculum Theory and Development	3
Education 234	Improvement of Instruction in the Secondary School	3
Education 272	Human Development and Learning	3

Subject Matter Courses

No less than 15 semester hours in one of the following subject fields:

Business
Chemistry
English
History and Political Science
Mathematics
Physics
Reading
General Science

Requirements for Candidacy:

Before applying for candidacy, the student will successfully complete four graduate courses with at least a grade of B. These four courses for candidacy will consist of two core courses and two courses from the subject matter area.

COUNSELOR EDUCATION

Dr. James J. Cunningham, Director of Graduate Program

Objectives: The preparation of secondary school counselors.

Certification as a School Counselor: Students who desire to apply for the Pennsylvania school counselor's certificate must follow the certificate sequence as approved by his advisor, and receive the master's degree.

Only students of proven competency who have successfully completed the certificate sequence and degree requirements will be endorsed for certification by the University.

Students who are not interested in secondary-school counseling may substitute certain other courses directed toward other objectives. Course selection will be made in conference with the student's advisor.

Major Concentration Entrance Requirements:

These requirements for entrance into the Counselor Education major are in addition to the entrance requirements of the Graduate School:

(1) Recommendations of three persons capable of evaluating the candidate's personal qualities as well as academic potential,
(2) A written, self-estimate of the candidate's qualifications for the job of the counselor.
(3) A personal interview.

Core Courses for Candidacy:

		Semester Hours
Education 202	Educational Research and Literature	3
Education 240	Foundations of Guidance	3
Education 241	Group Counseling Methods	3
Education 253	Measurement and Evaluation I	3

Other Required Courses

		Semester Hours
Education 242	Counseling Interview Techniques	3
Education 243	Current Issues in Counseling and Guidance	3
Education 244.1	Supervised Counseling Experience	3
Education 244.2	Supervised Counseling Experience	3
Education 246	Vocational Development	3
Education 254	Evaluation and Appraisal II	3
Education 274	Developmental Psychology	3
Education 275	Psychology of Adjustment	3

ELECTIVES

Education 207	The Sociology of Education	3
Education 262	Learning Theories	3
Education 263	Contemporary Theories of Personality	3
Education 268	The Education of Exceptional Children	3
Sociology 404	Cultural Anthropology	3
Sociology 406	Community Organization	3
Sociology 411	Urban Sociology	3
Sociology 413	Juvenile Delinquency	3
Sociology 414	American Minority Groups	3

Master's Degree:

Thirty-six semester hours of credit are required for the Master's degree.

ELEMENTARY EDUCATION

Dr. Michael Marino, Director of Graduate Program

Objective: To prepare the elementary school teacher in-service for more effective instruction of students, and to help him acquire the skills and values to become a self-renewing teacher.

Core Courses		*Semester Hours*
Education 202	Educational Research and Literature	3
Education 205	Historical and Philosophical Bases of Education I	3
Education 206	Historical and Philosophical Bases of Education II	3
	or	
Education 207	Sociology of Education	3

Related Courses		
Education 230	Elementary School Curriculum	3
Education 231	Improving Instruction in the Elementary School	3
Education 272	Human Development and Learning	3

Specialization Courses (15 credits - Ed. 282 required)		
Education 253	Evaluation and Appraisal I	3
Education 281	Language Arts in Pre-School Education	3
Education 282	Introduction to Developmental Reading	3
Education 283	Children's Literature in the Elementary School	3
Education 284	Seminar in the Language Arts: Reading, Writing, Speaking, and Listening	3
Education 285	The Analysis of Research Studies in the Language Arts	3
Education 286	Selected Problems in Elementary School Mathematics	3
Education 286.1	Seminar in Elementary School Mathematics	3
Education 287	Selected Problems in Elementary School Social Studies	3
Education 287.1	Seminar in Elementary School Social Studies	3

Education 288	Selected Problems in Elementary School	3
Education 288.1	Seminar in Elementary School Science	3
Education 289	Workshop in Elementary Education	3
Education 292	Prevention and Detection of Reading Disabilities	2
Education 293.1	Diagnosis of Reading Disabilities	3
Education 295	Instructional Materials for the Content Areas	2
Education 300	Directed Study: Elementary Education	3

Requirements for Candidacy:

Before applying for candidacy, the student will successfully complete the required *core courses* and either Education 230 or 231, a total of 12 semester hours of credit.

Elementary Education students may elect to be graded either by the traditional marking system or by the pass-fail system in selected courses. The traditional marking system is described in the beginning section of this catalogue. The pass-fail system is as follows: P means average or above-average achievement (P replaces A, B+ and B of the traditional marking system), C, I, and F are the other symbols used and mean the same in both systems.

The instructor designates whether his course is to be selected for student choice of marking systems, and in those selected courses, the student registers his choice of marking system with the instructor at the beginning of the semester.

ADMINISTRATION

(Elementary and Secondary)

Dr. Carleton Upright, Director of Graduate Program

Objectives: The preparation of elementary and secondary school principals.

Major Concentration Entrance Requirements:

These requirements for entrance into the Administrative major are in addition to the entrance requirements of the Graduate School:

(1) Recommendations of three persons capable of evaluating the candidate's personal qualities as well as academic potential.
(2) A written self-estimate of the candidate's qualifications for the position of principal.
(3) A personal interview.

Core Courses for Candidacy:

Education 202 Research and Literature
Education 205 Historical & Philosophical Foundations I
Education 221 Educational Administration

The Master's Degree:

A student will be recommended for a Master of Science degree in School Administration when he has satisfactorily completed the seven courses required in Phase I and Phase II, four courses from Phase III and IV as approved by his mentor, passed a Comprehensive Examination in School Administration, and filed an approved scholarly paper sixty days prior to graduation.

Certification as a Principal:

Upon completion of the 15 courses or 45 credits (including Ed. 225 and Ed. 235) provided in Phases I through IV, a candidate may be endorsed by the University of Scranton to the Pennsylvania Department of Education for certification as a Secondary School Principal.

Upon completion of the 15 courses or 45 credits (including Ed. 223 and Ed. 232) provided in Phases I through IV, a candidate may be endorsed by the University of Scranton to the Pennsylvania Department of Education for certification as an Elementary School Principal.

A master's degree is required for either or both certificates.

Phase I - Four Courses - Ed. 202, Ed. 205 and Ed. 221 required.

Ed. 202 Educational Research and Literature
Ed. 205 Historical & Philosophcal Foundations of Education I
Ed. 206 Historical & Philosophical Foundations of Education II
Ed. 207 Sociology of Education
Ed. 221 Educational Administration

Phase II - Three Courses - Ed. 233 required.

Ed. 223 The Elementary School Principal as Administrator
Ed. 225 The Secondary School Principal as Administrator
Ed. 226 Administration and Organization of the Middle School
Ed. 232 The Elementary School Principal as Supervisor
Ed. 233 Curriculum Development and Theory
Ed. 235 The Secondary School Principal as Supervisor

Phase III - Three Courses - elective

Bus. 244 Labor Management Problems
Bus. 246 Management of Human Resources
Ed. 240 Foundations of Guidance
Ed. 241 Group Processes
Hist. 208 - 209 The American Heritage
Hist. 212 - 213 Development of American Civilization

Pol. Sci. 407 - Public Administration
Soc. 406 - Community Organization
Soc. 411 - Urban Sociology
Soc. 414 - American Minority Groups

Maximum of two courses from this group.

Phase IV - Five Courses - elective.

Ed. 222.1 Problems in School Administration & Supervision
Ed. 222.2 Public Relations for School Principals
Ed. 222.3 Personnel Management for School Principals
Ed. 222.4 School Finance Problems for the School Principal
Ed. 222.5 School Plant Management for the School Principal
Ed. 222.6 School & Community Relations for the School Principal
Ed. 222.7 Practicum in School Administration
Ed. 222.8 School Law

READING

Dr. Raymond Kimble, Director of Reading

Objectives: To prepare reading specialists and reading supervisors, K through 12. Courses in this area are also of value to majors in other divisions.

A correlate in reading may be taken by stndents in elementary or secondary education with the approval of the Director of the Reading Program and their mentors. These courses will not completely prepare the students for State certification.

Core Courses for Candidacy:

Education 202 Research and Literature
Education 291 Foundations of Reading Instruction
Education 292 Prevention and Detection of Reading Difficulties
or
Education 295 Instructional Materials for the Content Area

Before applying for degree candidacy, the student must successfully complete Education 202; 291, 292 or 295.

I. *Courses Required for Master's Degree*: *Semester Hours*

Education 202	Educational Research and Literature	3
Education 253	Evaluation & Appraisal I	3
Education 262	Theories of Learning	3
Education 272	Human Growth and Development (or)	3
Education 274	Developmental Psychology	3
Education 291	Foundations of Reading Instruction	3
Education 292	Prevention and Detection of Reading Disabilities	3
Education 293	Diagnosis of Reading Disabilities	3
Education 294	Practicum in Reading	3
Education 295	Instructional Materials for the Content Area	3
Education 296	Organization & Operation of Reading Program	3

II. *Suggested Electives*

Education 205-206 Philosophical & Historical Bases of Education I & II
Education 207 Sociology of Education
Education 233 Curriculum Development and Theory
Education 241 Group Methods in Counseling
Education 268 Education of Exceptional Children
Education 283 Children's Literature for the Elementary School
Education 285 The Analysis of Research Studies in Language Arts
Education 299 Reading, The Denied Learner, and The Environment

CERTIFICATION PROGRAMS IN READING

Reading Specialist:

The University will recommend students upon request for the Reading Specialist Certificate in Pennsylvania after successfully completing the Masters' program in Reading.*

The applicant for the Reading Specialist Certificate must be a certificated teacher in Pennsylvania.

Reading Supervisor:

Permission to register for further graduate courses; certification as a reading specialist; and the completion of these additional courses are required for certification as Reading Supervisor.

Education 293.2 Clinical Diagnosis; Education 297, Administration and Supervision of Reading Program; Education 298, Practicum for Reading Supervisors, as well as three to nine hours from electives will be scheduled for this certificate.

*A person holding a Master's degree and a teaching certificate in Pennsylvania may be recommended for the Reading Specialist and or Supervisors Certificate upon the completion of the required sequence of reading and supportive courses.

REHABILITATION COUNSELING

Dr. Joseph A. Szuhay, Director of Graduate Program

Objective:

To prepare rehabilitation counselors and related professional personnel.

Candidacy Requirement:

Before applying for degree candidacy, the student will successfully complete the following courses:

R.C. 301 Introduction to Rehabilitation Services
R.C. 320 Rehabilitation Counseling
Educ. 253 Evaluation and Appraisal I

Fall Semester (first semester)		*Semester Hours*
R.C. 301	Introduction to Rehabilitation Services	3
R.C. 310	Human Dynamics	3
R.C. 311	Psycho-Social Problems	3
Educ. 246	Vocational Development	3
Educ. 253	Evaluation and Appraisal I	3
		15

Spring Semester (second semester)		
R.C. 320	Rehabilitation Counseling	3
R.C. 312	Mental Health and Mental Retardation	3
R.C. 313	Medical Aspects of Disability	3
R.C. 321	Group Processes	3
Educ. 254	Evaluation & Appraisal II	3
		15

Summer Session - Optional for full time students.

Fall Semester (third semester)		
Educ. 202	Educational Research	3
R.C. 314	Psycho-Social Aspects of Disability	3
R.C. 330	Vocational Evaluation and Behavior Modification	3
R.C. 340	Principles and Problems in Supervision	3
R.C. 360	Practicum in Rehabilitation Counseling	3
		15

Spring Semester (fourth semester)

R.C. 361 Internship in Rehabilitation Counseling ..... (variable credit - 12 maximum)

VOCATIONAL ADJUSTMENT

Dr. Joseph A. Szuhay, Director of Graduate Program

Objective: The preparation of personnel for the field of vocational adjustment services.

Candidacy Requirement:

(Same as for Rehabilitation Counselor)

PROGRAM

The student will enroll for the same courses as required for the Rehabilitation Counselor with two exceptions: He will add VOAD 360 - Practicum in Vocational Adjustment and substitute VOAD 361 - Internship in Vocational Adjustment for R.C. 361.

ART EDUCATION

Sr. Dorothy McLaughlin, Ed.D., R.S.M.,
Director of Graduate Program

Prerequisite:

Undergraduate Degree in Art or Art Education and Certification to teach Art.

Objective:

To prepare the art teacher in-service for research, administration and supervision of art programs and to develop organizational ability in the designing of the art program.

Thesis Requirement:

A suitable thesis as defined by the student's mentor is required for the degree, M.A. in Art Education.

Candidacy Requirement:

Before applying for candidacy, the student will successfully complete 12 semester hours of part I, Core Courses.

I. *Required Courses*		*Semester Hours*
Education 202	Educational Research & Literature	3
Education 205	Historical and Philosophical	
206	Bases of Education I and II	6
Education 221	Educational Administration	3
Education 233	Curriculum Theory & Development	3

II. *Art Education*

Art Education 304	Art in the Elementary School	3
Art Education 305	Art in the Secondary School	3
Art Education 303	Art in Special Education	3
Education 300	Directed Study	3
Art Education 306	Psychology of Art	3
Art		
	Advanced Studio Art - Painting - Art Educ. 301	3
	or	
	Advanced Studio Art - Sculpture - Art Educ. 302	3
	Education 290 Thesis Seminar	3
		30-33

Education - 15 semester hours
Art Education - 15 semester hours
Art Thesis - 3 semester hours

COURSE DESCRIPTIONS

FOUNDATIONS OF EDUCATION

Education 202. *Educational Research and Literature* *3 credits*

This is a basic course concerned with the nature of research problems. Predictive studies, surveys and experimental designs are treated with the objectives of critical appraisal by the student and as a help to him in initiating his research project, which is to be developed with his faculty advisor.

Education 205. *Philosophical and Historical Bases of Education I* *3 credits*

This course considers in the tradition of philosophy the fundamental problems of the nature of man, the child, the parent, the school, and society. The aims of education in society and their consequences in rights and duties are the most salient problems.

Education 206. *Philosophical and Historical Bases of Education II* *3 credits*

The second course studies the history of education formally. After a brief overview of the classical, patristic, and medieval periods, major attention is given to education in the twentieth century, especially in the United States.

Education 207. *The Sociology of Education* *3 credits*

The sociology of education is oriented toward understanding the social influences on learning. The socialization of the child, social structure in American society, social mobility, the school as an agency of socialization, social problems especially germane to the school such as delinquency, population and racial integration, the social role of the teacher, the school and its sociological environment will be the areas of special concern.

ADMINISTRATION

Education 221 - *Educational Administration* *3 credits*

A foundations course in general school administration, involving philosophical bases, organization in a democratic society, administration of instruction and personnel. Required of all students beginning a major in educational administration and a prerequisite for other courses in educational administration.

Education 222.1 - *Problems in School Administration and Supervision* *3 credits*

A seminar course for those seeking elementary and secondary school principal's certification. Emphasis is placed upon intensive investigation of selected problem in administration and supervision. (Prerequisites: Ed. 223 and 232 or Ed. 221 and 325).

Education 222.2 - *Public Relations for School Principals* *3 credits*

An introduction to school public relations. Emphasis is focused upon the principal's role in establishing contact between schools and the general public through the use of mass media.

Education 222.3 - *Personnel Management for School Principals* *3 credits*

An overview of the principal's role in the establishment and performance of personnel policies as they relate to recruitment, selection, orientation, deployment, promotion, evaluation, in-service development, morale, dismissal, and teacher-principal relationships. Admission with consent of instructor.

Education 222.4 - *School Finance Problems for the School Principal* *3 credits*

An introduction to public school finance as it relates to the school principal. Emphasis is focused upon the principal's role and responsibilities in handling student funds, district budgeting and accounting, and modern planning - programming - budgetary systems. Admission with consent of instructor.

Education 222.5 - *School Plant Management for the School Principal* *3 credits*

A study of problems involved in the planning, operation, and maintenance of school plant facilities. Emphasis is upon efficient use of existing plant facilities and their possible adaptations to meet modern educational and community needs. Admission with consent of instructor.

Education 222.6 - *School and Community Relations for the School Principal* *3 credits*

A study of the relationship of the school to the community. Emphasis is focused upon the school-community concept, community analysis, community characteristics affecting quality education, and public participation in education planning. Admission with consent of instructor.

Education 222.7 - *Practicum in School Administration* *3 credits*

The purpose of this course is to give the student practical experience in administrative work. A minimum of sixty clock hours in one semester must be spent on this work. Work is done under supervision in a local school system according to a definite schedule approved by the instructor and the administrator of the school system involved. Admission by special arrangement. (Offered Fall and Spring semesters only.)

Education 222.8 - *School Law* *3 credits*

A study of common law legislative enactments and directives of the Pennsylvania Department of Education as they pertain to the Pennsylvania School System.

Education 223 - *The Elementary School Principal as Administrator* *3 credits*

A technical course emphasizing the administrative duties and responsibilities of the elementary school principal. Attention is focused on types of organization, purogram, studies, pupil progress, teaching staff, plant and equipment, and community relationships. (Prerequisite: Ed. 221)

Education 225 - *The Secondary School Principal as Administrator* *3 credits*

A technical course emphasizing the administrative duties and responsibilities of the secondary school principal. Attention is focused on problems of organization, program of studies, pupil personnel, teaching staff, plant and equipment, and community relationships. (Prerequisite: Education 221)

Education 226 - *Administration and Organization of the Middle School* *3 credits*

A technical course emphasizing the organizational and administrative duties and responsibilities of the middle school principal. Attention is focused on the problems of organization, program of studies, pupil personnel, teaching staff, plant and equipment, and community relationships. (Prerequisite, Ed. 221)

CURRICULUM, INSTRUCTION & SUPERVISION

Education 230 - *The Elementary School Curriculum* *3 credits*

An investigation of curriculum theory as applied to classroom practice. Students will have an opportunity for serious study of the basic considerations necessary in providing a meaningful teaching-learning environment for children in a changing world.

Education 231 - *Improving Instruction in the Elementary School* *3 credits*

Students will study a wide spectrum of evaluative devices and techniques which are necessary for a comprehensive evaluation of all the objectivs of elementary education. Emphasis will be on how to apply the strategies of evaluation in the classroom to improve the curriculum of children.

Education 232 - *The Elementary School Principal as Supervisor* *3 credits*

Methods and techniques in the supervision of the elementary school with the objective of improvement of teaching and learning in terms of modern objectives and methods.

Education 233 - *Curriculum Development and Theory* *3 credits*

Principles of curriculum construction which underlie the reorganization of the program of studies for elementary and secondary schools, sources of the curriculum, methods of organization, structure of knowledge, and curriculum planning and development.

Education 234 - *Improving Instruction in the Secondary School* *3 credits*

Secondary general methods with emphasis on current procedures, theories and practices. Such topics as classroom atmosphere, teacher-pupil behavior patterns, teaching skills, pupil-teacher planning, inquiry, communication, logic in teaching and teaching the process of learning. Other topics will be introduced as interest of the group and time allows.

Education 235 - *The Secondary School Principal as Supervisor* *3 credits*

A technical course emphasizing the duties and responsibilities of the secondary school principal in the role of a supervisor of instruction. Attention is focused upon methods and techniques of supervision with the objective of improvement of teaching and learning in terms of modern objectives and methods.

Education 237.1 - *Teaching of History and Social Science* *3 credits*

A consideration of the objectives of social studies, organizing the subject matter, textual and non-textual materials, the social studies curriculum, outcomes and their evaluation.

Education 237.2 - *Teaching of English Literary Types in Secondary Schools* *3 credits*

Narrative and lyric poetry types, prose types, and drama. Techniques of methodology and organizational patterns are suggested. Listed under Education courses, this offering is taught by the Department of English as English 238.

Education 281 - *Language Arts in Pre-School Education* *3 credits*

The content of this course reflects recent trends in the language arts and how these trends might assist the pre-school child in language development. Special emphasis will be given to those experiences and strategies that can prepare young children for formal schooling. This course is particularly suitable for pre-school teachers and teacher-aides.

Education 282 - *Introduction to Developmental Reading* *3 credits*

This course is designed for classroom teachers in the elementary grades who wish to investigate some of the recent theories, practics, techniques and materials of instruction in reading. Major concepts covered in the course are readiness, decoding, comprehension and integration of reading with the other areas of the language arts.

Education 283 - *Children's Literature for the Elementary School* *3 credits*

Literature for children from kindergarten through the elementary school years. Children's literary needs and interests will be emphasized.

Education 284 - *Seminar in the Language Arts: Reading, Writing, Speaking and Listening* *3 credits*

Focus is on the place of the language arts in the total elementary school curriculum. Topics included are integration of reading, writing, speaking and listening; correlation of these four areas of the language arts with the content subjects; and a consideration of innovative spelling and handwriting programs.

Education 285 - *The Analysis of Research Studies in Language Arts* *3 credits*

This course is concerned with a critical analysis of the research evidence in the language arts and an examination of the underlying theoretical issues.

Representative experimental, corelational and clinical studies will be evaluated in terms of their design, statistical tests employed and the relationship between specific findings and general conclusions.

Education 286 - *Selected Problems in Elementary School Mathematics* *3 credits*

Students will study selected topics, problems and recent developments relevant to the elementary mathematics curriculum and instruction.

Education 286.1 - *Seminar in Elementary School Mathematics* *3 credits*

The major emphasis of this seminar will be individual action research projects in elementary school mathematics to be carried out in the student's classroom. Also, several colloquia topics of general interest will be studied in depth.

Education 287 - *Selected Problems in Elementary School Social Studies* *3 credits*

Students will study selected topics, problems, and recent developments in the elementary social studies curriculum and instruction.

Education 287.1 - *Seminar in Elemenetary School Social Studies* *3 credits*

The major emphasis of this seminar will be individual action research projects in the social studies to be carried out in the student's classroom. Also, several colloquia topics of general interest will be studied in depth.

Education 288 - *Selected Problems in Elementary School Science* *3 credits*

Students will study selected topics, problems and recent developments in the elementary science curriculum and instruction.

Education 288.1 - *Seminar in Elementary School Science* *3 credits*

The major emphasis of this seminar will be individual action research projects in elementary science to be carried out in the student's classroom. Also, several colloquia topics of general interest will be studied in depth. (Prerequisites, Educ. 202, 231)

Education 289 - *Workshop in Elementary Education* *3 credits*

Students will have the opportunity to develop and test innovative curriculum materials and strategies with special emphasis on models for individualizing instruction.

RESEARCH

Education 290 - *Research Seminar* *Variable*

Designed for students who are working on their M.A. thesis. Registration is only with permission of the student's advisor and the Departmental Chairman.

Education 300 - *Directed Study* *Variable*

This course is designed for students working in independent study on special projects and workshops. Registration in this course requires permission of the student's mentor.

READING

Education 291 - *Foundations of Reading Instruction* *3 credits*

A basic course in the foundation of reading designed to provide an introduction to reading instruction and reading programs. A study of the reading skills, techniques and methods which are essential for effective reading will be examined.

Education 292 - *Prevention and Detection of Reading Disabilities* *3 credits*

A course in which the factors associated with reading disabilities are examined. A multi-disciplinary approach will be emphasized to aid in the prevention and detection of reading problems. Case studies will be analyzed to aid in assisting the reading specialist candidate synthesize the information essential for understanding how to assist in preventing and detecting disabled readers. (Prerequisite Education 291 or consent of Instructor).

Education 293.1 - *Diagnosis of Reading Disabilities* *3 credits*

A laboratory course designed to assist the reading specialist in becoming proficient in diagnostic skills. Standardized tests and informal assessment instruments will be examined. The student will be required to prepare a Diagnostic Case Report on a student experiencing difficulty in reading. Selected assessment tools will be identified to recommend as appropriate for use by the classroom teacher. (Prerequisite Education 294 or consent of Instructor)

Education 293-2 - *Clinical Diagnosis of Reading Disabilities* *3 credits*

An instructional internship emphasizing the clinical aspects of individual diagnosis. The course is designed for advanced graduate students and provides for clinical experiences. (With permission of the Instructor)

Education 294 - *Practicum in Reading* *3 credits*

An instructional internship for classroom teachers and/or reading specialists designed to provide instructional experience with a disabled reader. The student is expected to assess, initiate a remediation program and report the results of the individualized instructional program. Appropriate materials, techniques and methods are examined and utilized during the internship. (Prerequisite Education 282 or 291 or consent of Instructor)

Education 295 - *Instructional Materials for the Content Areas* *3 credits*

A comprehensive survey of materials, resources and devices used to teach reading in the elementary and secondary schools. Emphasis will be placed on the specialized vocabularies, concepts and skills which are considered necessary for the comprehension of reading materials pertinent to content area subjects. Traditional and current trend materials, laboratory kits, teacher-made devices, instructional media, etc. will be examined.

Education 296 - *Organization and Operation of Reading Programs* *3 credits*

A lecture-discussion course dealing with the responsibilities of the reading specialist in setting up and directing a school reading program. Attention is given to types of programs and approaches to teaching reading in these different organizational patterns as well as incorporating procedures to support the regular classroom program.

Education 297 - *Administration and Supervision of Reading Programs* *3 credits*

The role of the reading supervisor as an administrator of a school-wide program, including clinics. Emphasis will be given to the changing concept of supervision; inter-staff relationships; public relations; in-service programs and demonstrations; behavioral objectives; principles of management; budgetary considerations. This course is taught in conjunction with the Division of Administration and Supervision.

Education 298 - *Practicum for Reading Supervisors* *3 credits*

Supervised elementary and secondary school field experience designed to give students experience in the work of the reading supervisor. A definitely scheduled field experience will be conducted under supervision in a local school system.

Education 299 - *Reading, the Denied Learner and the Environment* *3 credits*

A survey course identifying the types of denied learners and the resultant effects of social, economic, psychological, and linguistic factors on their success in learning to read. Consideration is given to planning workable programs and developing suitable materials for these learners.

COUNSELING AND GUIDANCE

Education 240 - *Foundations of Guidance* *3 credits*

The philosophy of guidance and its role in the total school program. The activities and techniques of the counselor are introduced, with special emphasis on the secondary-school counselor. Problems of organization, development, and administration of guidance services will be included. Required in the certificate program and must be taken during the first semester of graduate study.

Education 241 - *Group Methods in Counseling* *3 credits*

Provides a basic understanding of group dynamics and behavior. Processes and patterns of interaction are analyzed primarily from the standpoint of their broad educational significance. The selection, evaluation and use of group counseling methods and materials. Methods of developing and organizing group programs are also presented. Required in the certificate program as part of the sequence.

Education 242 - *Counseling Interview Techniques* *3 credits*
The application of counseling theory to the practical interview situation. Included will be the use of test and non-test data in counseling the individual student. The counselor candidate will be expected to refine his ability to analyze and synthesize pertinent information. Required in the certificate program and must be preceded by Educ. 254 and Educ. 275.

Education 243 - *Current Issues in Counseling and Guidance* *3 credits*
A professional seminar wherein emphasis is placed on the development of a sensitivity to the educational, sociological and philosophical implications of the counselor's role. This course is designed to provide for a smooth transition to the reality based school counseling situation. Individual counselor problems and deficiencies are identified and corrected. Required of all counselor education trainees.

Education 244.1 and 244.2 - *Supervised Counseling Experience* *6 credits*
Actual counseling of secondary school students under supervision. A variety of experiences are provided, including counseling with students on an individual as well as a group basis. Required in the certificate program. Admission is only by consent of the instructor.

Educaiton 246 - *Vocational Development* *3 credits*
Emphasis will be on the practical acquisition, evaluation and utilization of vocational, educational and social information. Psychological and sociological aspects of vocational choice and vocational adjustment will be presented and major theories of vocational development reviewed. Occupational and industrial classification systems will be studied, primarily in terms of their roles in enhancing the process of secondary school counseling.

Education 253 - *Evaluation and Appraisal I* *3 credits*
A foundation course to provide the counselor with the quantitative principles and skills necessary for effective functioning in testing and action research settings. Relevant concepts in descriptive statistics, correlation, and tests of significance will be applied to principles of test construction.

Education 254 - *Evaluation and Appraisal II* *3 credits*
Emphasis will be placed on the development of competency in the evaluation, use, and interpretation of tests and inventories used in assessing abilities, achievement, interests and personality. The relationship of informal data to the analysis of individual behavior will be included. Selected instruments will be examined in terms of their design and appropriate utilization in the secondary school program. (Prerequisite: Educ. 253)

Education 262 - *Learning Theories* *3 credits*
A treatment of selected, well known learning theories. These are related to the learning process, derived from rational and empirical sources, with the object of showing relationships to teaching. (Prerequisite: Education 272)

Education 263 - *Contemporary Theories of Personality* *3 credits*
An orientation to theories of personality, including the history, development and contributions of certain theories. (Prerequisite: Education 275 or consent of instructor)

Education 268 - *The Education of Exceptional Children* *3 credits*
A general view of the field; historical background - both philosophical and legislative; survey of physical, mental and emotional handicaps and of giftedness; remedial and preventive practices; a look at the future.

Education 272 - *Human Development and Learning* *3 credits*
A treatment of the psychological phases of human development, with emphasis upon the first two decades of life. Stress is placed upon the importance of interaction between phases of development, learning and classroom instruction.

Education 274 - *Developmental Psychology* *3 credits*
An intensive treatment of psychosocial and biological aspects of human development with special emphasis on the implications for the counseling of secondary school students. Recommended for the certificate.

Education 275 - *Psychology of Adjustment* *3 credits*
Provides an understanding of adjustive behavior. Attention is given to factors that influence behavior with special attention to adjustment problems of secondary school students. Recommended in certificate program and must be preceded by Education 274 or equivalent.

REHABILITATION COUNSELING

R.C. 301 - *Introduction to Rehabilitation Services* *3 credits*
Historical and legal background of rehabilitation. The roles of rehabilitation workers and the nature of resources.

R.C. 310 - *Human Dynamics* *3 credits*
A generic view of human dynamics, adjustment, and coping mechanisms. Central concepts, such as anxiety, will be discussed in terms of its physiological and psychological correlates, how it is related to adjustment and/or maladjustment, how it affects various types of performances (problem-solving, work, etc.), how it is a normal reaction to a wide range of situational events, but how it also relates critically to many forms of emotional disturbances.

R.C. 311 - *Psycho-Social Problems* *3 credits*
Psycho-social-cultural aspects of individuals in the following groups are discussed: socially-culturally disadvantaged, drug addict and user, alcoholic, and public offender. Approaches and problems in their rehabilitation are covered. At least four field trips are required.

R.C. 312 - *Mental Health and Mental Retardation* *3 credits*
Emphasis is on the diagnosis, etiology, and medical psychiatric and behavioral dynamics of emotional disturbance and mental retardation. Approaches and problems in rehabilitation are covered. At least two field trips are required.

R.C. 313 - *Medical Aspects of Disability* *3 credits*

Medical evaluation as part of the rehabilitation process. Study of body systems, medical terminology, and description of disabilities of importance to the counselor. Interpretation of medical information in reference to the social, psychological and vocational aspects of disabling conditions.

R.C. 314 - *Psycho-Social Aspects of Disability* *3 credits*

Emphasis is placed upon social-psychological situations confronting a person of a typical physique, and how he copes with them. Also considered are the external and internal factors which can aid or hinder psychological adjustment. Selected mental disorders are discussed in light of their affecting the life situation of the individual.

R.C. 320 - *Rehabilitation Counseling* *3 credits*

Theories of counseling are discussed. Their relationship and appropriateness to the various groups of individuals with which a rehabilitation counselor works is covered. Problems in implementing specific counseling styles with certain types of rehabliitation clients are discussed.

R.C. 321 - *Group Processes* *3 credits*

Theories of group counseling and dynamics are covered. Special group methods of dealing with different disability groups are discussed.

R.C. 330 - *Vocational Evaluation and Behavior Modification* *3 credits*

Emphasis is on techniques of vocational evaluation peculiar to rehabilitation such as work samples, job analyses, and situational approaches. Special approaches to personality and vocational evaluational for blind, illiterate, retarded, and emotional disturbed are covered.

R.C. 340 - *Principles and Problems in Supervision* *3 credits*

Administrative and supervisory principles and practices are covered. Included are leadership and supervisory principles, staff development practices, and personnel selection. Problems in supervision are presented.

R.C. 350 - *Directed Study in Rehabilitation* *Variable credit (1 to 6 credits)*

Elective course which student may select to study intensively an area of rehabilitation of particular interest to him. Approval of mentor required.

R.C. 360 - *Practicum in Rehabilitation Counseling* *3 credits*

Practice and application under supervision of the theory, principles, knowledge, and skills of rehabilitation with clients in various settings.

R.C. 361 - *Internship in Rehabilitation Counseling* *Variable credit (12 maximum)*

Full-time assignment in community rehabilitation agency, facility, or institution of the student's choice (with approval of mentor). Selection of site is usually made in terms of the student's interest and area of anticipated specialization.

Voad 360 - *Practicum in Vocational Adjustment* *3 credits*
Selective placement in one or two participating state agencies, facilities, or institutions providing vocational adjustment services.

Voad 361 - *Internship in Vocational Adjustment* *Variable credit (12 maximum)*
Full-time assignment to a state agency, facility, or institution providing vocational adjustment services.

ART EDUCATION

Art Educ 301 - *Advanced Painting* *3 credits*
Painting in oils, egg tempera, oil tempera and mixed-media. (Prerequisite: Painting).

Art Educ 302 - *Advanced Sculpture* *3 credits*
Three dimensional art work in the areas of modeling and casting, carving and constructing, using a variety of materials. (Prerequisite: Three Dimensional Design or Sculpture).

Art Educ 303 - *Art in Special Education* *3 credits*
Physical, mental and emotional handicaps and the therapeutic role of art in the education of exceptional persons.

Art Educ 304 - *Art in The Elementary School* *3 credits*
Philosophy and history of art education to the present day and evaluation of art education curricula as a basis for preparing an art program for the elementary school.

Art Educ 305 - *Art in The Secondary School* *3 credits*
Current theories, practices and programs in art, art facilities and budgets of secondary schools, with emphasis on administrator-teacher-pupil relationships, as a basis for developing a program in art.

Art Educ. 306 - *Psychology of Art* *3 credits*
Major psychological theories of art and their historical antecedents,, reading in the psychology of art, problems in the nature and genesis of artistic form, problems and studies of the creative individual.

MATHEMATICS

Math 404 - *Modern Algebra for Teachers* *3 credits*
A treatment of groups, rings, etc. culminating in the negative result, Abel's Theorem, that there can be no formula for solving polynomial equations of degree greater than four. Wherever possible, the material shall be related to the various subsets of the real number system covered in the secondary schools.

Math 405 - *Linear Algebra and Theory of Equations* *3 credits*
A study of second, third and fourth degree equations and systems of equations. Along with the methods of solution, an attempt will be made to provide the teacher with a backlog of applications for each type in the form of word problems.

Math 406 - *Introductory Analysis* *3 credits*
An indepth study of the concepts and principles of calculus that are generally encountered in a secondary school analysis course. Emphasis will be placed on the development of the concepts of limit, derivative and integral and the various techniques a teacher might utilize in presenting them to a secondary school class. The student need not presently possess facility with calculus as this will develop during the course.

Math 407 - *Geometry* *3 credits*
A study of Euclidean geometry including a discussion of methods and materials that teachers may employ in order to generate interest and enhance presentations. Wherever possible, relevant practical applications will be provided. A discussion of certain transformations will also be included.

Math 408 - *Probability and Statistics* *3 credits*
An axiomatic approach to probability covering the basic rules, independence and conditional probability, probability functions, normal curve and hypothesis testing.

Math 409 - *Introduction to Computing* *3 credits*
A discussion of various secondary school problem solving techniques which involve the use of computers.

GRADUATE - UNDERGRADUATE COURSES

Political Science 407 - *Public Administration* *3 credits*
Nature of public administration; structures and statutory limitations; staff organization and flow of command; employment policies, personnel training and management; employee organization; public relations.

Sociology 404 - *Cultural Anthropology* *3 credits*
Study and comparison of the learned, shared and transmitted behavior patterns and ideals by which man has worked out his social relations, dealt with his environment and defined his place in the world.

Sociology 406 - *Community Organization* *3 credits*
A general introduction to the field and process of community organization, both as a field of social work, and as a field of human endeavor. The coordination and financing of welfare activities, methods of appraising community needs and resources, planning and the initiation of welfare services. Services of a voluntary and governmental nature.

Sociology 411 - *Urban Sociology* *3 credits*
A sociological analysis of the development and effects of modern urbanization on human institutions, population trends and social relationships. The interrelationships, form, structure and organized life in cities, patterns of urban structure and cities of the future. The role of politics, social agencies and elements making for organization and disorganization. Urban planning and redevelopment.

Sociology 413 - *Juvenile Delinquency* *3 credits*

Juvenile delinquency as a social problem. Methods of treatment and prevention, including juvenile courts, clinics, probation, parole, correctional institutions, child placement and recreational programs.

Sociology 414 - *American Minority Groups* *3 credits*

A study of the cultural background, distribution, assimilation and other adjustments of minority groups; problems arising from the contacts of these people who differ as to race and culture. Prejudice and discrimination as opposed to the democratic ideology will be considered.

Department of Business Administration

Dr. Joseph R. Zandarski, Chairman
Prof. W. E. Katorkas, Director

DEPARTMENTAL REQUIREMENTS

The applicant for admission should possess the baccalaureate degree in Business Administration and provide the Admissions Committee with evidence of sufficient undergraduate preparation of good quality in Business Administration or Accounting.

A minimum undergraduate quality point average of 2.4 (on the basis of "A" equals 4.0) will be required. An applicant unable to satisfy this requirement may be admitted on the basis of an acceptable score on a national examination such as, the Admission Test for Graduate Study in Business, the Graduate Record Examination or the Miller Analogies Test.

If a student possesses a baccalaureate degree other than in Business, background preparation is expected in the following areas: Accounting, Statistics, Micro-Economics, Macro-Economics and Business Law. Additional undergraduate work may be required in the areas of Finance, Marketing or Management, depending upon the student's M.B.A. concentration, his undergraduate preparation, and his work experience. A student who has been given Provisional acceptance (some prerequisites needed) may request exemption from one or more prerequisites if he feels he has sufficient background preparation in these areas. The determination of the student's background knowledge in the area (s) in question will be by written examination (s). Application forms for such examination (s) can be obtained from the Dean of the Graduate School. (See fee schedule for cost of examination)

COURSE REQUIREMENTS

All students who intend to work for the degree of Master of Business Administration must take a basic core of courses in the field of Business Administration amounting to 12 credits. Students who have had differential calculus will substitute an elective course for Business 209. Eighteen additional credits are required in courses to be elected from the areas of Accounting, Management, Finance, Marketing and Economics. Nine credits must be obtained in one of

these fields of concentration, while the remaining nine may be in any of the other fields. Thus, the total number of credits required for graduation is thirty.

Under certain circumstances and with mentor recommendation, a student may be permitted to substitute approved University of Scranton upper-division undergraduate credits in Business and Economics as part of his graduate program. Students should consult their mentors regarding details and regulations concerning such substitutions.

CANDIDACY

Students seeking the M.B.A. degree must, before completing nine graduate credits in Business Administration, file an application for candidacy. On receipt of this application and the completion of nine graduate credits in Business Administration, the student's record will be reviewed by his mentor and the Chairman of the Department to determine that all prerequisites have been met and to appraise his potential for successful completion of graduate work and growth in his field. No one will be permitted to continue his credits toward the M.B.A. degree until he has been formally admitted to candidacy.

PROGRAM IN BUSINESS ADMINISTRATION

Core Courses

Bus. 200 Business Research Methodology
Bus. 205 Managerial Economics
Bus. 209 Mathematics for Business
Bus. 215 Business Policy

Advanced Courses—Electives

Bus. 220 Managerial Accounting
Bus. 223 Advanced Accounting Theory
Bus. 225 Accounitng Systems
Bus. 242 Quantitative Management
Bus. 244 Labor - Management Problems
Bus. 246 Management of Human Resources
Bus. 260 Marketing Management
Bus. 261 Marketing Research
Bus. 262 Sales and Advertising Problems
Bus. 280 Financial Management
Bus. 281 Financial Institutions
Bus. 283 Investment Analysis
Bus. 290 Business Conditions Analysis
Bus. 291 Advanced Economic Theory
Bus. 293 International Economics

COURSE PROJECTION: BUSINESS ADMINISTRATION

Courses	Fa 73	Sp 74	Su 74	Fa 74	Sp 75
200	x			x	
205		x	x		x
209	x		x	x	
215		x			x
220	x		x		x
223		x			
225				x	
242		x			
244	x			x	
246		x			x
260	x		x		x
261		x			
262				x	
280		x			
281	x		x		x
283				x	
290	x		x		x
291		x			
293				x	

Course Descriptions - Business

CORE COURSES

Bus. 200. *Research Methodology* *3 credits*
Research methods in business and economics, with special attention to research techniques, application of quantitative method, bibliographic sources, and preparation of written research findings. This course should be taken the first time it is offered after the student is admitted to the program.

Bus. 205. *Managerial Economics (Prerequisite - Bus. 209)* *3 credits*
An intensive study of the problems of value and costs, including supply and demand, cost analysis and pricing theories, monopoly and competition, price control and allocation, and policies of the government as they affect prices.

Bus. 209. *Mathematics for Business* *3 credits*
An introduction to various mathematical methods useful in the solution of business problems. Topics include simple functions, limits of a function, some differential and integral calculus, and some of their applications to business problems. If the student has passed a course in calculus, he may substitute any elective for this course.

Bus. 215. *Business Policy* *3 credits*
Starting with conceptual and institutional foundations of business, the course covers the philosophy, history and ethics of business policy, culminating in the specific areas of policy, accounting, finance, marketing and management. This course should be taken in the last semester of the student's program, and only after all other core and major courses are completed.

ADVANCED COURSES—ELECTIVES

Bus. 220. *Managerial Accounting* *3 credits*
A study of the accounting techniques and their effective use in managerial organization and administration. Emphasis will be placed on the principles of cost accounting and the statement of application of funds.

Bus. 223. *Advanced Accounting Theory* *3 credits*
A study of the theories underlying accounting principles and the application of these theories and principles in specific situations. Current literature taken from various accounting periodicals and recent C.P.A. examinations will be used extensively. Emphasis is placed on the importance of high standards in the accounting profession and its importance to management.

Bus. 225. *Accounting Systems* *3 credits*
How to make an accounting survey of a business, select the methods to be used, design the system of procedures and prepare the systems report for businesses of varied types and sizes.

Bus. 242. *Quantitative Management* *3 credits*
The quantitative approach to managerial problems of planning and controlling the design and operation of business enterprises. Topics include the use of personal probability as a basis for rational decision making, and operations research techniques including mathematical programming, queues, simulation and inventory theory. (Prerequisite: Bus. 209 or its equivalent)

Bus. 244. *Labor-Management Problems* *3 credits*
An analysis of the policies of employers, organized labor and the government, in attempting to solve labor-management problems, with an appraisal of the results. Discussions include evaluations of social, economic and legal trends as well as leading cases on the subject.

Bus. 246. *Management of Human Resources* *3 credits*
An understanding of manpower development, objectives, and policies involved in a business enterprise as found in a sound industrial relations program.

Bus. 260. *Marketing Management* *3 credits*
The many legal, competitive, social and administrative problems which face the marketing executive and the methods and tools used in solving these problems. Factual cases will be used throughout the course.

Bus. 261. *Marketing Research* *3 credits*
Research techniques used in solving marketing problems in both motivation and product research, including research methods and design, questionnaire construction, sampling and analysis; the contributions of the behavioral sciences to marketing research.

Bus. 262. *Sales and Advertising Problems* *3 credits*
Advertising and the sales efforts as tools of management in marketing industrial and consumer goods and services, and the effectiveness of these tools in achieving their marketing objectives.

Bus. 280. *Financial Management* *3 credits*
Principles of policy formulation in the modern corporation; the institutions, instruments and customary procedures that influence the determination of corporate policy; and the reasons for choices in seeking solutions to specific financial problems.

Bus. 281. *Financial Institutions* *3 credits*
A detailed survey of the more important financial institutions of the United States in order to determine their functions and inter-relations in the national economy, and their importance in the various fields of business administration.

Bus. 283. *Investment Analysis* *3 credits*
The investment markets and the financial analysis of various types of investments including industrial, railroad, utility, financial institutions, real estate, government, municipal and foreign securities; the mathematics and mechanics of investments.

Bus. 290. *Business Conditions Analysis* *3 credits*
A critical evaluation of gross national product, disposable personal income, population changes, rate of economic growth, and their effects on sales. Methods of forecasting sales of capital goods, durable and non-durable consumer goods.

Bus. 291. *Advanced Economic Theory* *3 credits*
The modern economy as a whole in its aspects of total income, aggregate demand, total output and employment, as well as their significant components and determinants. Relationship between micro-macro analysis.

Bus. 293. *International Economics* *3 credits*
International trade theories and policy implication, with particular emphasis on present foreign economic policy of the United States. The economic forces and institutions which throw light upon and condition political relationships between nations.

Bus. 294. *Research Seminar* *variable credit*
Designed for students who are working on directed research projects. Registration is only with permission of the Department Chairman and the Dean.

Department of English

William B. Hill, S.J., Ph.D., Chairman and Director of Graduate Program

DEPARTMENTAL REQUIREMENTS

The applicant must, prior to the start of his graduate program, possess a baccalaureate degree; and must have completed on the undergraduate upper-division level a minimum of eighteen semester hours in English; and must, further, have a quality point index of not less than 2.5 (of a possible 4.0) in his upper-division courses in English. The applicant will, normally, be admitted to candidacy after the successful completion of nine graduate credits in English and the recommendation of the Departmental graduate committee. Applicants who have achieved satisfactory scores on the advanced literature section of the Graduate Record Examination prior to admission (scores to be reviewed by the graduate committee) may be considered degree candidates immediately. The Department recommends that all applicants take the G.R.E., particularly those who contemplate proceeding to the doctorate. No student may continue to take credits towards a degree (after nine hours of course work) who has not been formally notified of his admission to candidacy by the Department.

COURSE REQUIREMENTS

A. Master of Arts in English

Candidates for the degree of Master of Arts in English may select a thesis or non-thesis program.

A 1. Thesis Program

The M.A. thesis program will require the student to complete successfully 27 credits in courses in English, as outlined below; pass a comprehensive requirement; and present a critical study (dissertation) of no less than 12,000 words. The comprehensive examination for the M.A. (thesis) will be an oral examination, in which the candidate will defend his dissertation and be questioned on literary material from the area of his thesis and two other major areas of English or American literature. The specifific areas for each student's oral examination will be established by the student and his mentor, based on the thesis topic.

The specific course requirement for the M.A. (thesis and non-thesis) is English 200: Introduction to Research and Linguistics (three credits). The remaining 24 hours of credit for the M.A. (thesis) are to be taken in courses approved by the student's mentor. These courses should be so chosen as to combine student interest in certain periods and genres and coverage, both in range and depth, of the fields of British and American literature. The 30 credit hours necessary for the M.A. (thesis) are completed with the three hours granted for the dissertation.

A 2. Non-Thesis Program

The M.A. non-thesis program requires the student to complete successfully 33 credits in courses in English, including English 200; and pass a written comprehensive examination. All students entering the M.A. (non-thesis) program after August 31, 1971, will take a written comprehensive based on a departmental reading list which will be distributed to students at the time of admission. Students enrolled in the program prior to that date have the option of taking the "old" M.A. comprehensive, or the "new" reading list comprehensive.

B. Master of Science - Correlated Program

A total of 33 hours of credit, distributed between courses in English and Eucation, will be required for this degree, for which no dissertation is necessary. The candidate must also pass successfully a comprehensive examination in Education. Refer to Education Department requirements.

MODERN LANGUAGE REQUIREMENT

If the M.A. degree is to be a terminal degree, students will not be required to satisfy a modern language requirement. Nor will there be a modern language requirement for students following the Master of Science (correlated) program. Students intending to continue graduate studies elsewhere to the doctoral level should, however, fulfill the modern language requirement by successfully completing a reading examination in the language of their choice, before taking the M.A. degree. The languages, normally, would be either French or German.

FIVE YEAR PROGRAM

A special five year program leading to the Master of Arts degree in English has been developed, which makes it possible for a student to obtain both the A.B. and M.A. degrees within this prescribed period. Undergraduate majors in English, at either the University of Scranton or College Misericordia, may apply for admission to the program

during the second semester of their Sophomore year (prior to the pre-registration period). Acceptance into the program is determined by a Departmental Board of Review. The student, after acceptance, is required to attend two summer sessions (between the Sophomore and Junior years; and the Junior and Senior years), to "acquire" approximately 15 undergraduate credits. This acceleration would make it possible for him to complete requirements for the bachelor's degree at the end of the first semester of his fourth year. He would then begin his graduate program during the spring semester of the fourth year; attend the following summer session; and complete the graduate program and receive the M.A. degree in May of the fifth year.

A sample program will be found below; but there are many other possible variations:

A. *Spring Semester, Fourth Year*
Six - Nine graduate credits

B. *Summer Session - After Fourth Year*
Six graduate credits

C. *Fall Semester, Fifth Year*
Nine - twelve graduate credits

D. *Spring Semester, Fifth Year*
Three graduate credits and M.A. Thesis

Course Descriptions - English

English 200. *Introduction to Research and Linguistics* *3 credits*
A survey of a selective list of books and periodicals that every student of literature should read; also an introduction to the general science of linguistics.

English 205. *Modern Grammar in the English Curriculum* *3 credits*
The theory of transformational grammar, studied against such other theories as prescriptivism, structuralism and stratificational, in practical application to the high school and college English curriculum.

English 206. *Composition in the English Curriculum* *3 credits*
Designed for both high school and junior college English teachers, this course will review traditional composition programs and approaches, explore innovative programs and methods, and consider the place of composition in a variety of curricula.

English 207. *Literature in the English Curriculum* *3 credits*
In considering strategies for selecting, organizing, and teaching high school literature, this course will explore the central question of what a sequential, well-balanced, efficient program in literature should consist of. It will include adolescent literature, themes, genres, socio-political movements, thematic and short courses, autotutorial devices or systems, and inquiry methods.

English 211. *Medieval English Literature* *3 credits*
A critical study of the major literary works in English of the Middle Ages, from **Beowulf** through **Everyman.**

English 214. *Chaucer, The Canterbury Tales* *3 credits*
A detailed examination of the general structure of **The Canterbury Tales** and of the individual tales, with attention to specialized critical tools and techniques, and to various critical approaches to Chaucer.

English 215. *Chaucer, Troilus and Minor Poems* *3 credits*
Close study of Chaucer's poetry other than **The Canterbury Tales,** with particular emphasis on **Troilus and Criseyde.**

English 220. *Shakespeare and Other Elizabethan Dramatists I* *3 credits*
A careful study of Shakespeare's plays written before 1600, together with selected plays of Marlowe, Kyd, Greene, and Peele.

English 221. *Shakespeare and Other Elizabethan Dramatists II* *3 credits*
A careful study of Shakespeare's plays written after 1600, together with selected plays by Jonson, Chapman, Deffer, Beaumont, Fletcher, Tourneur, Marston, Middleton, Massinger, and Ford.

English 231. *Sixteenth Century Literature* *3 credits*
Poetry and prose of the English Renaissance, with special attention to the new birth of poetic form; examination in depth of the great poetic achievements of Sidney, Spenser, and Shakespeare.

English 232. *Seventeenth Century Literature* *3 credits*
A study in depth of the major British authors of the seventeenth century other than Milton.

English 234. *Milton* *3 credits*
An appreciation of John Milton as poet, critic, and innovator, together with a critical survey of the poet's sources, poetical works, and literary forms.

English 236. *Augustan Studies* *3 credits*
A study in depth of the major works of John Dryden, Alexander Pope, Jonathan Swift, Joseph Addison, Richard Steele, and William Congreve.

English 238. *Dr. Johnson and His Age* *3 credits*
The work of Johnson and his contemporaries studied in the light of the social, political, and intellectual background of the second half of the eighteenth century.

English 239. *The English Novel, Defoe through Austen* *3 credits*
Readings of selected novels of the eighteenth and early nineteenth centuries, with emphasis on the literary, social, and intellectual sources of the novel.

English 240. *Romantic Poetry and Criticism* *3 credits*
An examination of the poetry and critical writings of the major romantic poets. The aim is not an exhaustive survey but an intensive study of several of the following: Blake, Wordsworth, Coleridge, Byron, Shelley, Keats.

English 243. *Victorian Poetry and Non-Fictional Prose* *3 credits*
An examination of Victorian poetry and non-fictional prose in the light of its social, political, and intellectual backgrounds. The aim is not an exhaustive survey but an intensive study of several of the following: Tennyson, Browning, Arnold, the Pre-Raphaelites, Carlyle, Newman, Ruskin and Pater.

English 244. *The English Novel, Dickens through Hardy* *3 credits*
Readings in selected Victorian novels in the light of the social, political, and intellectual backgrounds of the age, with emphasis on the artistic development of the novel.

English 250. *Studies in Modern Poetry* *3 credits*
An intensive study of trends and techniques in such major twentieth century poets as Hopkins, Yeats, Auden, Dylan Thomas, Frost, Stevens and Eliot.

English 252. *Modern British Fiction* *3 credits*
Readings of selected twentieth century novels in the light of the social, political, and intellectual background of the times. Such major British

novelists of the century as Conrad, Joyce, D. H. Lawrence, E. M. Forster, Greene, Waugh, Virginia Woolf, and Muriel Spark will be included.

English 254. *Modern Drama* *3 credits*
The development of drama (Continental, British, Irish, and American) from Ibsen to the present day. Among playwrights whose works will be read and studied are: Ibsen Strindberg, Chekhov, Synge, Yeats, O'Casey, Shaw, Osborne, Pinter, Brecht, Anouilh, Ionesco, Beckett, O'Neill, Anderson, Wilder, Inge, and Albee.

English 256. *American Romanticism and Transcendentalism* *3 credits*
Studies in the major works of Cooper, Poe, Hawthorne, Emerson, and Melville.

English 257. *American Realism and Naturalism* *3 credits*
Studies in the major works of Twain, Crane, Norris, James, and Howells.

English 259. *Twentieth Century American Fiction* *3 credits*
Modern American novels and short stories. The period from 1900 to the present will be covered, emphasizing such major figures as Fitzgerald, Hemingway, Faulkner, Steinbeck, and Barth.

(N.B. Each of the following seminars will involve concentrated study of a single literary figure, movement, or genre. The particular subject of each seminar will vary each year.)

English 270. *Seminar: Special Studies in English Literature* *3 credits*

English 271. *Seminar: Special Studies in American Literature* *3 credits*

English 272. *Seminar: Special Studies in Comparative Literature* *3 credits*

English 280. *Afro-American Literature* *3 credits*
An introductory survey of Afro-American literature, stressing an in-depth examination of the works of Afro-Americans in poetry, song, drama, the novel, the essay, and the slave narrative. Emphasis will be placed on the relationship between the Afro-American experience and the African experience. The period covered is from the founding of the American nation to the present day.

A tentative cycle indicating when courses will be offered is available from the Department. Please see the chairman.

Department of History

Prof. Timothy H. Scully, Chairman and Director of Graduate Program

DEPARTMENTAL REQUIREMENTS

The applicant must possess the baccalaureate degree and should as an undergraduate have completed a minimum of 18 upper-division semester hours in History, six of which must be in American History. Courses in Government, Political Science or cognate fields may round out the 12 other required undergraduate elective credits. The applicant should have a Quality Point Index of not less than 2.5 in all his undergraduate course work or have attained a score of 500 on the GRE. He will be considered as non-matriculated until he has successfully completed nine graduate credits in History and filed formal application for candidacy. In the event that significant gaps occur in the student's undergraduate background, additional graduate courses may be specified by the mentor. His acceptance as a candidate will be decided at that time by the History Department, after their appraisal of his capability for continued growth as a graduate student. No student may continue to take credits toward the degree until he has been notified of his acceptance as a candidate. At that time his mentor will be appointed.

MASTER OF ARTS IN HISTORY

Candidates for the Master of Arts in History may select a thesis or non-thesis program. The thesis program will require the student to complete successfully twenty-seven credits in courses described below, pass the Comprehensive Examination and present an acceptable dissertation for which three credits are allowed. The thesis topic must be approved by the student's mentor under whose active direction the disertation should be satisfactory completed.

The non-thesis program will require the student to complete successfully thirty-three credits in History courses and pass a Comprehensive Examination. Students concentrating in History and selecting a minor in another field may take credits in English, Education, or Psychology. These minor courses should be integrated with the student's program and are subject to the mentor's approval.

COMPREHENSIVE EXAMINATIONS

All candidates for the Comprehensive Examination in History must have:

(1) the approval of the mentor

(2) completed a minimum of 21 course credits in History. This includes History 200 and at least three sequential (two semester) courses. (Waivers will be based on individual cases).

MASTER OF SCIENCE - CORRELATED

A total of 33 credits in course work will be required of candidates for this degree, for which no dissertation is required. The candidate must also successfully pass a Comprehensive Examination in Education.

Please refer to correlated program with education.

Course Descriptions - History

Hist. 200. *Science and Methods of American Historians* *3 credits*
A study and application of the scientific methodology required for gathering, assessing, synthesizing, and documenting historical information. Special attention will be given to the American historians who typify the distinct traditional approach and to those who represent significant departures from that trend.

Hist. 203. *History of the American Presidency* *3 credits*
American Party System in selection of the President will serve as an introduction to a detailed analysis of the office, functions and powers of the Chief Executive.

Hist. 205. *History of American Federalism* *3 credits*
Evolution, development and changes in federal and state relations, with an analysis of the forces influencing these changes.

Hist. 208. *The American Heritage I* *3 credits*
Influences affecting the development of the American Nation; puritanism and its effect on the colonial experience; controversy occasioned by the Revolution of 1776; Hamiltonian and Jeffersonian ideals at work; implications of the Secessionist and Slave controversies on American institutional life.

Hist. 209. *The American Heritage II* *3 credits*
Impact of Reconstruction: Social Darwinism; Imperialism; Liberalism and Conservatism on Contemporary American Institutions form the basis of evaluation and interpretation.

Hist. 210. *American Constitutional Law and History I* *3 credits*
Emphasis on the bases of American constitutionalism, the Federal Convention, the development of the judicial process, states rights vs. nationalism, Marshall and Taney Courts, and other issues which led to the Civil War.

Hist. 211. *American Constitutional Law and History II* *3 credits*
The Fourteenth Amendment will initiate the second phase of this course. Problems dealing with Federalism, civil liberties and religious freedom will be treated.

Hist. 212. *Development of American Civilization I* *3 credits*
The leading economic, social and cultural aspects of American life; study of the economic, religious and intellectual bases of colonial American life; the impact of the Revolution; development of towns and country life; sectional differences; early labor movements; growth of democracy and reform movements.

Hist. 213. *Development of American Civilization II* *3 credits*
A continuation of the above course from 1865 to the present. The growth of industry, agriculture and agrarian discontent; the waning frontier; labor and immigration; literature and the arts; the diffusion of knowledge, religious tendencies.

Hist. 214. *American Foreign Relations: Revolution to Imperialism* *3 credits*

A study of America's use of diplomacy as an instrument of national self-interest in its rise from infant republic to world power.

Hist. 215. *American Foreign Relations: "Big Stick" Diplomacy to the Present* *3 credits*

Survey of involvements that world power status meant for the U. S. viz.: the Caribbean; two World Wars; Pan Americanism; free world security since 1945.

Hist. 217. *American Foreign Relations: Special Topics* *3 credits*

A comprehensive study of selected topics, covering the entire range of U. S. foreign relations. Admission based on tangible proof of survey courses in the field.

Hist. 218. *Political and Social History I: Colonial America to 1783* *3 credits*

European beginnings — the English settlements; colonial society and politics; the struggle for the Mississippi Valley; the War of Independence.

Hist. 220. *Political and Social History of U. S. II: 1789-1852* *3 credits*

American internal developments in the early years of the Constitution and th early Presidents, Jacksonian democracy's impact on American life; the impulse toward territorial expansion and the sharpening of regional clashes.

Hist. 222. *Political and Social History of U. S. III: 1852-1900* *3 credits*

Analysis of the social, economic and political conditions that resulted in the struggle for Southern Independence; the war years in the North and the South; Reconstruction, big business; organized labor; internal political issues from Andrew Johnson to Theodore Roosevelt.

Hist. 224. *Political and Social History of U. S. IV: 1900 - Present* *3 credits*

Tracing American development after 1900, stress will be placed upon the Roosevelt Era and its Progressivism, Wilson's New Freedom and the problems of World War I. The return to "normalcy," the Great Depression and the New Deal; F. D. Roosevelt and world politics, the origins and aftermath of World War II.

Hist. 228. *The American Heritage III* *3 credits*

A study of contemporary political thought as approached by the methodologies of behavioralism, formalism and functionalism.

Hist. 229. *America and World Leadership* *3 credits*

A study of America's role and relationship to contemporary international institutions and world problems.

Hist. 230. *Seminar: Contemporary Historical Problems* *3 credits*
A empirical approach to modern historical phenomenon.

Hist. 231. *Urban History* *3 credits*
The role of the city in the development of the American nation.

Hist. 237.1 *Teaching of History and Social Science* *3 credits*
A consideration of the objectives of social studies, organizing the subject matter, textual and non-textual materials, the social studies curriculum, outcomes and their evaluation.

Hist. 238. *The American Party System* *3 credits*
A historical treatment of the evolution of the two party system in the United States. Special emphasis will be given to the **modus operandi** of a political party, the ingredients of electoral success, and the relationship of the party system to national policy.

Hist. 239. *Nineteenth Century Europe* *3 credits*
A detailed study of the social, intellectual, and revolutionary character of Nineteenth Century Europe. Special emphasis will be on the ideological developments which influenced European attitudes.

Hist. 240. *The Cold War* *3 credits*
An examination of the major international developments since World War II; the partition of Germany; Arab-Israeli conflict; the emergence of the Third World; the fragmentation of the Soviet bloc; the war in Vietnam and the Sino American detente. Special attention will be given domestic factors influencing American foreign policy during the Cold War.

Hist. 241. *Colonial Latin America* *3 credits*
A study of the colonial institutions - political, economic, social, and religious of Spanish and Portuguese American from Conquet to Independence.

Hist. 242. *Latin America Since Independence* *3 credits*
A study of the development of Latin America from independence to the present day with emphasis on the politico-economic history and foreign relations of its principal countries.

Hist. 243. *The Era of the American Revolution* *3 credits*
Backgrounds, causes and course of events leading to the American Revolution.

Hist. 244. *Twentieth Century Europe* *3 credits*
An evaluation and analysis of the major events of this century as they affect the major political states of Europe.

Hist. 300. *Contemporary Foreign Problems* *3 credits*
A modular approach to the critical current problems facing the United States in dealing with other national states.

Department of Chemistry

Dr. Umbay H. Burti, Chairman and Director of Graduate Program

DEPARTMENTAL REQUIREMENTS

The applicant must, at the time of application, possess a baccalaureate degree and have ordinarily completed on the undergraduate level General and Analytical Chemistry and one full year's course in each of the following: Organic Chemistry, Physical Chemistry, General Physics, and Mathematics through Integral Calculus. Further, the applicant must have an over-all Quality Point Index of 2.5, with 2.5 in the Chemistry and other Science Courses. Certain of these qualifications may be waived at the discretion of the Department Chairman.

Students with limited course deficiencies in undergraduate preparation may be admitted with the approval of the Chemistry Faculty but should correct such deficiencies concurrently with their initial graduate courses.

The applicant will not be considered matriculated to candidacy for the degree until the following requirements have been satisfied:

1. Satisfactory completion of at least two courses in the Graduate Division.
2. Satisfactory completion of the Qualifying Examinations. Such examinations cover the areas of Organic, Analytical, Inorganic and Physical Chemistry. These examinations must be taken early in the first semester of the student's enrollment in the program.
3. Candidacy requirements must be fulfilled not later than the completion of eighteen credits in the Graduate Division.
4. At the discretion of his mentor, a student might be required to complete one Laboratory Preparation course in the Graduate Program, and/or a course in Chemical Literature in the Undergraduate Program.
5. At the discretion of the Department Chairman, Chemistry 252 may be required as a prerequisite to Chemistry 251 (Seminar).

The normal graduate load is 9-10 credits per semester. A Master's Degree will ordinarily require 3 to 4 semesters of study.

COURSE REQUIREMENTS

A. Master of Arts in Chemistry

Candidates for the degree of Master of Arts in Chemistry must complete successfully 24 credits in Chemistry, as outlined below, pass a Comprehensive Examination, and present a thesis demonstrating a distinct contribution to the field. Six (6) credit hours are allowed for the thesis which must be defended.

Prior to engaging in research relative to the thesis, the candidate must present a proposal for such research to his mentor and defend such proposal before the Chemistry Department Faculty. Arrangements are to be made with the candidate's mentor.

The specific course requirements for this degree are: Chem. 202, 211, 221, 222, 241, and 242. In addition, a basic laboratory course in the student's field of specialization will be taken unless sufficient preparation in advanced techniques is established. Attendance at Departmental Seminars is mandatory. An additional six (6) credits may be selected from elective courses in the student's field of specialization (analytical, biochemistry, organic, or physical). Research under the Mentor's direction culminates in a thesis which must be defended before the chemistry faculty.

For the Master of Arts degree, success in a German, French or Russian reading examination is also one of the requirements.

Special Five Year Program for Undergraduates

A special five year program leading to the Master of Arts degree has been developed to enable a high school graduate to obtain his Bachelor of Science and Masters Degree in Chemistry within this prescribed period. Undergraduates in Chemistry may apply for acceptance into the 5 year program upon completing their freshman year. Inclusion in the program involves accelerated study during the following two (2) years and the student will be expected to spend at least one entire summer, usually in his junior year, anticipating some of the usual undergraduate requirements. The senior year is divided equally between concluding undergraduate requirements and initiating fundamental or core courses of the graduate curriculum. Research, forming the bases of the thesis, will be initiated in the summer following the senior year and continue for two (2) subsequent semesters. In the fifth (5th) year, elective graduate courses for the degree are completed.

Students in this program will make formal application to the Graduate School at the end of their Junior year. The application fee is waived. Such students will retain their mentor assigned in the Undergraduate Program. The Graduate Qualifying Examinations will substitute for the Undergraduate Comprehensive Examinations.

B. Master of Science in Chemistry

The Master of Science Degree is awarded for successful completion of a non-thesis program.

A student accepted for graduate study under this program clears qualifying examinations as above and similarly plans his program.

Again, limited deficiencies are corrected prior to or concurrently with graduate studies.

In this program thirty (30) course credits will be required. Core courses, as above, are: Chem. 202, 211, 221, 222, 241, and 242. Additional elective courses totaling 12 credits complete the program. To provide for flexibility in the program and the undergraduate needs, one or more graduate courses in mathematics or cognate sciences may be taken as electives.

No thesis or language examination is required but comprehensive examinations are an integral part of the degree requirements.

C. Master of Science in Chemistry for Secondary School Teachers

The Master of Science in Chemistry for Secondary School Teachers is designed specifically for the professional improvement of high school teachers.

Candidates for this degree must successfully complete thirty credits, fifteen of which must be in chemistry and six more in the teaching of chemistry. Great latitude is allowed in filling in the remaining nine credits. There is no language or qualifying examination requirement.

The prerequisites for this degree are not as stringent as for the others. For admission, applicants should have completed two semesters in chemistry, and one year each of college physics and mathematics.

The required core courses for this degree are: Chem. 202, 211, 222, 245 and 246. In lieu of a thesis, the student must also take Chem. 257-58, a two semester course in the teaching of high school chemistry. With his mentor's approval, the student may take his remaining nine credits in any graduate or upper division undergraduate courses that meet his needs.

D. Master of Arts in Biochemistry

The M.A. program with its research emphasis prepares the student for doctoral work or for industrial employment, or research in biologically oriented enterprise.

Candidates for the degree must complete a minimum of twenty-four credits in chemistry-biochemistry as outlined below, pass comprehensive examinations and present a thesis demonstrating a contribution to the field. Up to six credit hours are allowed for the thesis.

The required core courses for the degree are Chem. 211, Chem. 222, Chem. 233, Chem. 234, Chem. 242. If a student is deficient in Undergraduate Physical Chemistry he must take Chem. 245 and Chem. 246 in lieu of Chem. 242. The remaining courses may be selected from the following electives: Chem. 235, 236, 237, 263, 264 and others. A

basic laboratory course in Biochemistry will be required unless sufficient preparation in advanced techniques is established. The research, culminating in a thesis, must be defended before the Chemistry Faculty. For the M.A. degree, success in German, French or Russian reading examination is required.

E. Master of Science in Biochemistry

The M.S. program is designed as a terminal degree for professional improvement of Biochemists or the retraining of chemists in the field of Biochemistry.

Candidates for the degree must successfully complete 30 credits in Chemistry-Biochemistry as outlined below and pass a comprehensive examination in their major field. No thesis or language examination is required.

The Core Courses are Chem. 211, Chem. 222, Chem. 233, Chem. 234, Chem. 242. If a student is deficient in Undergraduate Physical Chemistry he must take Chem. 245 and Chem. 246 in lieu of Chem. 242. Elective courses may be selected from Chem. 235, 236, 237, 263, 264 and others. A basic laboratory course will be required in Biochemistry, unless proficiency in Biochemical techniques is established.

F. Correlated Master of Science in Secondary Education — Chemistry

The correlated Master of Science Degree in Secondary Education — Chemistry is designed for the professional improvement of secondary school teachers.

After acceptance for graduate study and qualifying examinations, an integrated course of studies is arranged under the Mentor's direction. Limited deficiencies in Chemistry preparation or background will be remedied prior to or concurrently with graduate studies.

Thirty-three credits are required for the degree of which fifteen (15) will be in Chemistry and eighteen (18) in graduate education courses. The required courses in Chemistry are: Chem. 202, 221, and 241. An additional 6 credits of electives in graduate chemistry are acceptable.

Neither a thesis nor a language requirement must be fulfilled, but comprehensive examinations in Chemistry and Education are prescribed.

Course Descriptions - Chemistry

Chem. 202. *Advanced Inorganic Chemistry* *3 credits*
Theoretical concepts and their application to the reactions and structure of inorganic compounds. Introduction to co-ordination chemistry. Coordination chemistry and related topics; physical methods, reaction mechanisms.

Chem. 211. *Advanced Analytical Chemistry* *3 credits*
Theory and description of modern analytical techniques with emphasis on physico-chemical measurements, including the limitation of physical and chemical separation techniques, and rates and mechanisms of analytical reactions.

Chem. 213. *Electro-Analytic Chemistry* *3 credits*
Theory and applications of potentiometry, polarography, amperometry, coulometry, mass spectrometry and other analytical methods.

Chem. 214. *Applied Spectroscopy* *3 credits*
Theory and applications in chemical analysis of emission spectroscopy, flame photometry, ultraviolet, visible and infrared spectrophotometry, fluorometry and various x-ray methods.

Chem. 218. *Analytical Methods* *1 credit*
Laboratory practice with special analytical apparatus and methods used for process and control, and for research. (Lab course - Lab fee charged).

Chem. 221-222. *Advanced Organic Chemistry* *6 credits*
A survey of synthetic and theoretical organic chemistry at an advanced level, with emphasis on stereochemistry and mechanism.

Chem. 223. *Theoretical Organic Chemistry* *3 credits*
A study of the methodology of determining the relationship of structure to reactivity, the mechanisms of important reaction types and the factors that can influence rates and pathways. (Prerequisite: Chem. 222)

Chem. 224. *Heterocyclic Chemistry* *3 credits*
An introductory survey of the structure and reactivity of important types of heterocyclic compounds. (Prerequisite: Chem. 222)

Chem. 225. *The Conservation of Orbital Symmetry* *3 credits*
An explanation of the background of the Woodward-Hoffman Rules from Group Theory. A consideration of their applications to a broad spectrum of concerted organic reactions.

Chem. 228. *Organic Preparations* *1 credit*
Laboratory performance of a number of typical organic syntheses, with an emphasis on the most modern techniques. (Lab course - Lab fee charged).

Chem. 233-234. *Biochemistry* *6 credits*
Chemistry of carbohydrates, lipids, proteins and nucleic acids. Mechanisms and kinetics of enzyme action. A study of the metabolism, digestion and absorption of carbohydrates, lipids, amino acids and proteins.

Chem. 235. *Biophysical Chemistry* *3 credits*
Topics to include transport phenomena (at both the cellular and the molecular level), optical, mechanical and electric properties of proteins, theory of liquids and solutions, mathematical models in biology, and radiation biophysics. Choice and depth of topics will vary with the interests and abilities of the class. Prerequisite: Chem. 245-246 or equivalent.

Chem. 236. *Biochemical Genetics* *3 credits*
Principles and theories of heredity, with special emphasis on biochemical genetics, with their applications to the genetics of microorganisms and human heredity.

Chem. 237. *Enzymology* *3 credits*
A course on the chemical nature of enzymes with relation to mechanisms of enzyme action and kinetics. Purification and identification of enzymes and isozymes. Biochemical and physiological aspects of enzymes in living systems.

Chem. 237.3. *Teaching of Chemistry* *3 credits*
Use of modern methods in the teaching of Chemistry on a secondary level. Recent developments in the treatment of subject matter, including advances in laboratory techniques and demonstration methods. Review of concepts of research as they apply to Chemistry.

Chem. 238. *Biochemical Preparations* *1 credit*
Application of modern theories to biological chemical methods. Spectroscopy, chromatography, polarimetry, electrophoresis, ionophoresis. Applied problems in biochemical research using modern biochemical methods. (Lab course - Lab fee charged).

Chem. 243. *Chemical Kinetics* *3 credits*
The mechanics of chemical reactions as revealed by various methods. Rate measurements and photo-chemical experiments are discussed. Topics include transition state theory and collision theory, unimolecular reactions, ionic reactions, modern experimental approaches to the nature of the transient intermediates and elementary reactions, molecular structure and reactivity, catalysis, tracer studies, hydrodynamics and kinetics, combustion and detonation.

Chem. 241-242. *Advanced Physical Chemistry* *6 credits*
A comprehensive treatment of modern aspects of physical chemistry. The application of chemical thermodynamics to thermochemistry and chemical equilibrium. Advanced concepts of the theories of atomic and molecular structure. Quantum theory and introduction to wave mechanics.

Chem. 244. *Statistical Thermodynamics* *3 credits*
A vigorous treatment of the applications of the laws of thermodynamics to chemical systems, including an introduction to statistical mechanics, with emphasis on the statistical interpretation of thermodynamic partition functions and the reversible and irreversible thermodynamic behavior of chemical substances. (Prerequisite: Chem. 242)

Chem. 245-246. *Intermediate Physical Chemistry* *6 credits*
A review of the fundamentals of chemical principles, and a treatment of the mathematics requisite for such review. Two semesters—this course is offered for graduate credit in program "C" only.

Chem. 247. *Group Theory in Chemistry* *3 credits*
A study of the background, formalism and application of group theoretical notions as they relate to chemical and physical problems. Special emphasis on applications to problems of atomic and molecular structure and spectra.

Chem. 251. *Seminar* *1 credit*

Chem. 252. *Introduction to Research* *1 credit*
A thorough review of the literature of Chemistry in preparation for active laboratory research. The use of such sources as Chemical Abstracts, the Journal Literature, Patent Literature and "Beilstein's Handbuch" will be stressed.

Chem. 255. *M.A. Thesis* *variable up to 6 credits*

Chem. 257-258. *Chemistry on a Secondary Level* *6 credits*
This course is treated on a Lecture-Seminar basis with respect to content and methods dealing with Chemistry in the secondary school curriculum. Two semesters. This is similar to N.S.F. course in Chemistry. Only 6 credits total from this series may be claimed for degree.

Chem. 261. *Polymer Chemistry* *3 credits*
Introduction to the physico-chemical aspects of polymers: emphasis on structure, properties and application; thermodynamics of polymer solutions; statistical mechanical consideration of polymers; theories of rubber elasticity.

Chem. 263. *Agricultural Chemistry I* *3 credits*
Physical and chemical properties of soil. Improvement of soil for the purpose of plant production by means of chemicals, microorganisms and wastes. Chemical synthesis in plants.

Chem. 264. *Agricultural Chemistry II* *3 credits*
Biochemistry of plant growth and plant disease. The nature of pesticide action, growth stimulation and inhibition. Energy relations in the synthesis and production of living organisms. (Although Chem. 263 is not a prerequisite for Chem. 264, it is recommended that both courses be taken with Chem. 263 preceding Chem. 264).

Department of Physics

Dr. Eugene A. McGinnis, Chairman and Director of Graduate Program

DEPARTMENTAL REQUIREMENTS

The applicant for admission must possess the Baccalaureate degree in Physics or a related fiield in Engineering. An overall quality point average of 2.5 is required with a 2.7 average in the Physics and Mathematics courses. The applicant will ordinarily be expected to have completed as an undergraduate at least 24 credits in Physics. Included in these courses should be at least three upper division courses in Mechanics, Electricity, Modern Physics or Optics. Besides the above requirements in Physics, the applicant is expected to have at least one Mathematics course beyond the Differential Equations, Advanced Calculus preferred. Students with limited course deficiencies in undergraduate preparation may be admitted with the approval of the Physics faculty but must correct such deficiencies concurrently with their initial graduate courses. Matriculation to candidacy in the Graduate School will be deferred until admission requirements have been successfully accomplished, and the applicant has successfully completed at least two courses in the Graduate Division.

COURSE REQUIREMENTS

A. Master of Arts in Physics

Candidates for the degree of Master of Arts in Physics will be required to complete successfully 30 graduate credits and pass a comprehensive examination. Included in these 30 credits is a research dissertation for which a maximum of six credits may be allowed.

Physics courses 264 and 265 along with four courses from 268, 269, 260, 261, 278 and 279 will be ordinarily required of all candidates for this degree.

B. Master of Science in Physics

Candidates for the degree of Master of Science in Physics will be required to complete 30 graduate credits in approved courses and pass a comprehensive examination. Of these credits 18 to 24 must be in Physics and must include Physics 264 and 265. Six to twelve credits, if approved by the Physics department, may be followed in allied Science or Mathematics courses.

C. Master of Science — Correlated Programs

Candidates for the Master of Science degree in the program correlated with Education must complete 33 graduate credits and pass comprehensive examinations. Of these 33 credits, 15 will be required in Physics and 18 in graduate education. Students in this program will have mentors assigned from both the Physics and the Education departments to maintain a close liaison with both departments during their program of studies.

Physics 252. *Mathematical Physics I* *3 credits*
Determinants and Matrices. Fourier Series. La Place Transformations. Introduction to Partial Differential Equations and Boundary Value Problems. Special Functions of Physics including Bessel Functions, Legendre Polynomials, etc.

Physics 253. *Mathematical Physics II* *3 credits*
Functions of a Complex Variable. Infinite Series in the Complex Plane. Theory of Residues. Conformal Mapping. Fourier and La Place Transforms. Advanced Partial Differential Equations. Boundary Value Problems in Physics. Green's Functions.

Physics 260. *Advanced Mechanics I* *3 credits*
Lagrange's and Hamilton's equation for point objects. Hamilton's Principle and the Calculus of Variations. Two body central force motion. Linear vector transformations. Kinematics of rigid body motion. Corequisite: Physics 253.

Physics 261. *Advanced Mechanics II* *3 credits*
Rigid body equations of motion. Special Theory of Relativity in the covariant four dimensional notation. Canonical transformations and the Hamilton-Jacobi theory. Theory of small oscillations. Prerequisite: Physics 260.

Physics 264. *Quantum Mechanics I* *3 credits*
Basic postulates of Quantum Mechanics. The Schrodinger Wave Equation. Solution of the Wave Equation in One Dimension. The Harmonic Oscillator. Angular Momentum and Spin. Prerequisite: Physics 253.

Physics 265. *Quantum Mechanics II* *3 credits*
Central Forces. The Hydrogen Atom. Matrix Representations and Transformations. Perturbation Theory. Many Body Problems. Identical Particles. Scattering. Prerequisite: Physics 264.

Physics 268. *Statistical Physics I* *3 credits*
Interpretation of thermodynamics in terms of microscopic phenomena via kinetic theory and the statistics of Maxwell-Boltzmann, Fermi-Dirac, and Bose-Einstein. The application of both classical and quantum statistics to systems of non-interacting particles. Prerequisite: Physics 253.

Physics 269. *Statistical Physics II* *3 credits*
Statistical mechanics of systems of interacting particles and other special topics. e.g. imperfect gases, liquids, ferromagnets, electrons in solids, transport equations. Prerequisite: Physics 268.

Physics 270. *Solid State Physics I* *3 credits*
The crystal state of matter. Crystal conduction. Lattice energies and vibrations. Elastic constant. Ionic conduction. Properties of metal alloys. Free electron theory of metals. Metallic conduction. Band theory of solids. Conduction in solids. Corequisite: Physics 264.

Physics 271. *Solid State Physics II* *3 credits*
Theory of semiconductors and semiconductor devices. Dielectric and optical properties of solids. Magnetic properties of solids, diamagnetism, paramagnetism, ferro-magnetism. Special topics. Prerequisite: Physics 270.

Physics 274. *Advanced Electronics* *3 credits*
An extension of the basic electronic courses treating additional vacuum tube and transistor circuits and systems such as oscillators and signal generators, various special purpose circuits and basic analog and digital computer circuits and their operations. Prerequisite: Intermediate courses in Electronics.

Physics 275. *High Frequency and Pules Circuits* *3 credits*
Review of Electromagnetic wave theory. Transmission line and wave guide theory. Measurement of high frequency signals. Introduction to the circuit configurations used for the generation and processing of pulse, digital, and switching waveforms. Prerequisite: Intermediate course in Electronics.

Physics 276. *Electronic Systems* *3 credits*
Applications of electronic circuitry in physical measurement. Pulse systems in nuclear measurements and in computers; servo-mechanical control system; feed back loops. Prerequisite: Intermediate course in Electronics.

Physics 277. *Electronic Systems* *3 credits*
Vacuum tube and transistor circuits for instrumentation and measurement. Pulse counters; binary and decade scalars; forward and reverse counters. Vacuum tube and other high impedance voltmeter circuits. Integrating circuits; count rate meters. Coincidence circuits; switching circuits; Cathode ray display circuitry. Prerequisite: Intermediate course in Electronics.

Physics 278. *Electromagnetic Theory I* *3 credits*
Electrostatics, Gauss's Law, Poisson and Laplace equations, Boundary value problems. Maxwell's equations. Prerequisite: Physics 253.

Physics 279. *Electromagnetic Theory II* *3 credits*
Radiating systems. Special theory of relativity. Relativistic kinematics. Radiating charges. Special topics. Prerequisite: Physics 278.

Physics 282. *Nuclear Physics I* *3 credits*
The study of nuclear models and force theories. Natural and induced radioactivity. Theory and measurement of alpha, beta, and gamma decay. Theory of the neutrino. Prerequisite: Intermediate course in Modern Physics.

Physics 283. *Nuclear Physics II* *3 Credits*
Nuclear structure, nuclear spin, nuclear magnetic effects. Nuclear reactions with protons, alpha particles, and neutrons; induced radioactivity with neutrons, sources of neutrons, neutron detectors, nuclear fission. Prerequisite: Physics 282.

Physics 284. *Introduction to Biophysics* *3 credits*
Topics include the theory of transport phenomena that are significant both in the living cell and in the physical characterization of bio-macromolecules, from the standpoint of statistical mechanics and non-equilibrium thermo-

dynamics. Molecular resonance phenomena and microscopic theories of pure liquids and solutions. Radiation in Biology. Prerequisite: Mathematics through Calculus.

Physics 290 and 291. *Experimental Methods* *3 credits*
Experiments in optical spectroscopy, infrared spectrophotometry, nuclear magnetic resonance, laser optics, X-Ray diffraction, vacuum evaporation, Mossbauer effect, and beta and gamma ray spectrometry. Each student is expected to perform representative experiments in selected areas listed above and to pursue at least one area in depth in order to make some significant improvements or contributions to techniques. Students will make their own study of references to experimental methods and equipment under guidance and write a comprehensive paper in their work.

Physics 294 or 295. *Selected Topics for Independent Study* *3 credits*
Similar in scope to experimental methods except that student will investigate in depth the theoretical aspects of selected topics in Physics. A comprehensive paper on the topics investigated will be required of the student.

Physics 237.4. *Teaching of Physics* *3 credits*
Use of modern methods and classroom aids in the teaching of Secondary School Physics. Accent on recent developments in the field of Physics. Introduction to some of the research tools used in Physics.

Physics 296 or 297. *Master's Thesis* *Variable*
Based on theoretical or experimental research. Student subject to oral examination by Physics Staff members.

Physics 298 or 299. *Seminar* *1 credit*

MASTER OF SCIENCE IN GENERAL SCIENCE

Dr. Eugene A. McGinnis, Director and Mentor for General Science
Dr. Matthew C. Farrell, Mentor for Correlated Education

DESCRIPTION OF PROGRAM

The Master of Science degree in General Science is assumed to be a terminal degree. It is provided so that teachers at the elementary and junior high level will be able to update their science knowledge and thus be better able to handle the recently introduced curricula with its science content. For science teachers at the secondary level it provides an opportunity to become versed in more than one area of science and consequently enhance their teaching skills.

DIVISION REQUIREMENTS

The applicant must, at the time of application, possess a baccalaureate degree, with an overall Quality Point Index of at least 2.5. The applicant will not be considered to be a candidate for the degree until he has successfully passed three of the core courses. No student may continue to take credits toward the degree until he has been notified of his acceptance as a candidate.

COURSE REQUIREMENTS

A. Master of Science in General Science

Candidates for the M.S. in General Science must successfully complete thirty (30) course credits. The core courses, of which, normally four are required, are: Science 201, 202, 203, 204, 205 and 206. Additional elective courses totaling twelve credits complete the program. These courses may be chosen, with the approval of the advisor, from any graduate or upper division undergraduate course offering in Biology, Chemistry, Physics, Mathematic, or Education. A scholarly paper, with topic approved by mentor, is also required.

B. Master of Science in General Science - Correlated Program

Candidates for the Master of Science degree in the program correlated with Education must complete 33 graduate credits. Of these 33 credits, 15 will be required in General Science and 18 in Graduate Education. Students in this program will have mentors assigned from both the Physics and the Education departments to maintain a close liaison with both departments during their program of studies. A scholarly paper, with topic approved by mentor, is also required.

Course Descriptions - General Science

COURSE DESCRIPTIONS

Sci. 201. *Introduction to Science* *3 credits*
This course provides an overview of developments in Physical Science from the beginning to the latest developments in Nuclear Energy. It concerns itself not only with the historical aspects of this development, but also with the philosophical implications and socio-cultural effects.

Sci. 202. *Classical Physics and Its Relationship to the Space Age* *3 credits*
Introduction to Newton's Laws, conservation of momentum and energy. Study of Rotational motion. History and development of space science. Study of harmonic motion and transfer of energy by waves. Probability and statistical concepts in Human affairs. Heat and Thermodynamics. Electricity and Magnetism.

Sci. 203. *Modern Physics and its Impact on Man's Progress* *3 credits*
Theory of Relativity. Transition from determinism to indeterminism. Birth of Modern Physics. Bohr atom. Wave Mechanics. Radioactivity and the Atomic Nucleus. Overall effect of science on the progress of man.

Sci. 204. *Chemical Concepts and Their Significance in Life* *3 credits*
Nature of chemical bonds and reactions. Chemistry of carbon as an organic basis for living organisms. Organic, inorganic, and Physical chemistry in relation to the origin and continuance of life. Significance of chemical principles in the interaction between living organisms and their environment. (Student experments in appropriate teaching methodologies will be performed.)

Sci. 205. *Chemical Compounds as a Basis for Life* *3 credits*
Biochemical production, function, and nature of the building blocks for the living cell. Chemistry of heredity and information systems. Energy conversions in the living cell. Biochemical aspects of the interaction between organisms, environment and drugs. (Student experiments in appropriate teaching methodologies will be performed.)

Sci. 206. *Biological Structure and Function of Living Organisms* *3 credits*
Molecular, psychological and morphological levels of organization. Differentiation, division and growth of cells. Biological and psychological aspects of Genetics, reproduction and ecology. (Student experiments in appropriate teaching methodologies will be performed.)

Sci. 207. *Geology* *3 credits*

The earth: its structure, composition, and agents of construction and destruction. Evolution of the earth and the development of life upon it. Identification of rocks and minerals. Interpretation of topographic and geologic ages.

Sci. 208. *Astronomy* *3 credits*

Survey of solar systems, stars and galaxies. Observational basis of Astronomy. Discussion of artificial satellites and space vehicles as a modern method of obtaining scientific information. Opportunity for astronomical observation will be provided.

Sci. 209. *Meteorology* *3 credits*

Study of the atmosphere and the principles associated with Atmospheric changes. Methods for observing and recording weather data. Reading and interpreting weather maps.

Sci. 210. *Science and the Human Environment* *3 credits*

The effects of the technological, scientific and industrial progress on air, land and water resources of the human environment will be studied. Problems in each of the resource areas will be discussed in detail. Lecture-Demonstration.

University of Scranton
The Graduate Faculty

HARRY B. STRICKLAND (1963)
Associate Professor of Business Administration (1968)
B.S., St. Vincent's College; M.L., Ph.D., University of Pittsburgh

DONALD L. ANGELL (1969)
Associate Professor of Education (1969)
B.S., Ithaca College; M.S., University of Oregon;
Ph.D., University of Illinois

MARTIN D. APPLETON (1955)
Professor of Chemistry (1964)
B.S., University of Scranton;
M.S., Ph.D., Pennsylvania State University

GEORGE V. BABCOCK, JR. (1963)
Assistant Professor of Economics (1965)
A.B., M.A., Ph. L., Boston College; M.B.A., New York University;
Cand. Ph.D., Cornell University

CARL P. BARONE (1970)
Associate Professor of Counselor Education (1970)
B.A., M.A., Colorado State College;
M.A., University of Wisconsin; Ph.D., Ohio University

JOHN A. BEIDLER (1964)
Associate Professor (1967)
Chairman, Department of Mathematics (1970)
A.B., King's College, M.A. Lehigh University, Cand. Ph.D.,
Pennsylvania State University

MRIGEN BOSE (1968)
Assistant Professor of Business Administration
B.S. Patna University; M.S. University of Kentucky;
Ph.D. University of Utah

FRANK C. BROWN, D. Et U.* (1939)
Associate Professor of History (1954)
A.B., University of Scranton; M.A., Columbia University

CHARLES J. BUCKLEY, D. Et U.* (1947)
Associate Professor of Business Administration (1968)
Dean of the Evening College (1963)
B.S., University of Scranton;
M.B.A., Cand. Ph.D., New York University

UMBAY H. BURTI, D. Et U.* (1935)
Professor (1970);
Chairman Department of Chemistry (1950)
B.S., LL.D., University of Scranton

JOSEPH M. CANNON (1959)
Associate Professor of Counselor Education (1968)
B.S., University of Scranton;
M.Ed., Cand. Ed.D., Pennsylvania State University;
Certified Psychologist

ELLEN M. CASEY (1969)
Assistant Professor of English
B.S., Loyola of Chicago; M.A., University of Iowa;
Ph.D., University of Wisconsin

PAUL J. CASEY, S.J. (1955)
Professor of Chemistry (1972);
Director of Computer Center (1965)
B.S., Ph.L., Spring Hill College; S.T.B., Woodstock College;
M.S., University of Detroit

JAMES J. CUNNINGHAM (1968)
Associate Professor of Counselor Education (1971)
A.B., King's College; Ed.M., Ed. D., Rutgers University;
Certified Psychologist

FRANCIS H. CURTIS (1966)
Assistant Professor of Education (1966)
B.S., M.Ed., Cand. Ed.D., Pennsylvania State University

VITO DEL VECCHIO (1969)
Associate Professor of Biology (1973)
B.S., University of Scranton; M.S., St. John's University;
Ph.D., Hahneman Medical College Graduate School

ANTHONY J. DiSTEFANO (1968)
Assistant Professor of Physics (1968)
B.E.E., Brooklyn Polytechnic Institute; M.A., Columbia University;
Cand. Ph.D., Stevens Institute of Technology

JOSEPH C. DOUGHERTY (1967)
Professor of History (1967)
B.A., St. Charles; M.A., Ph.D., Georgetown University

JOHN J. DUNSTONE (1966)
Associate Professor of Psychology (1969)
B.S., Pennsylvania State University;
M.S., Ph.D., University of Massachusetts

JOSEPH T. EVANS, D. Et U* (1953)
Professor (1965),
Chairman, Department of Biology (1969; 1972)
B.S., University of Scranton; M.S., Ph.D., The Catholic University of America

PAUL F. FAHEY (1968)
Assistant Professor of Physics (1968)
B.S., University of Scranton; M.S., Ph.D., University of Virginia

MATTHEW C. FARRELL (1967)
Associate Professor of Education (1972)
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